MARCH 1, 1960
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TELEPHONE ENGINEER & MANAGEMENT

the telephone industry magazine

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TECHNOLOGY
DEPARTMENT

BETTER ANSWERS ARE NEEDED, by T. D. Talmage

The TE&M Editorial—"The Governors Aren't Kidding"

SALES TRAINING FOR INSTALLERS, by A. R. Stacey

Who Can Afford a PBX Service Advisor? by D. A. Perigo

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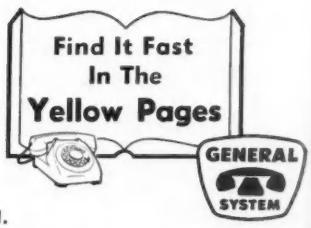

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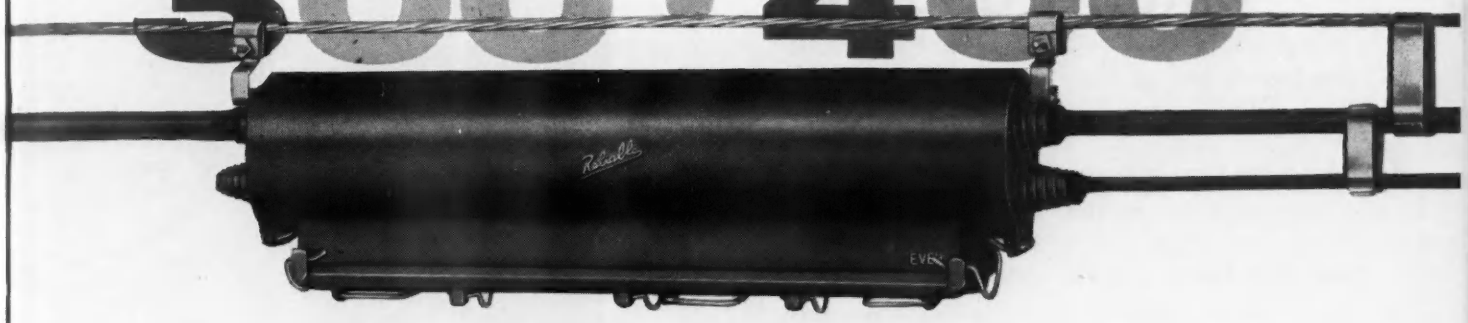

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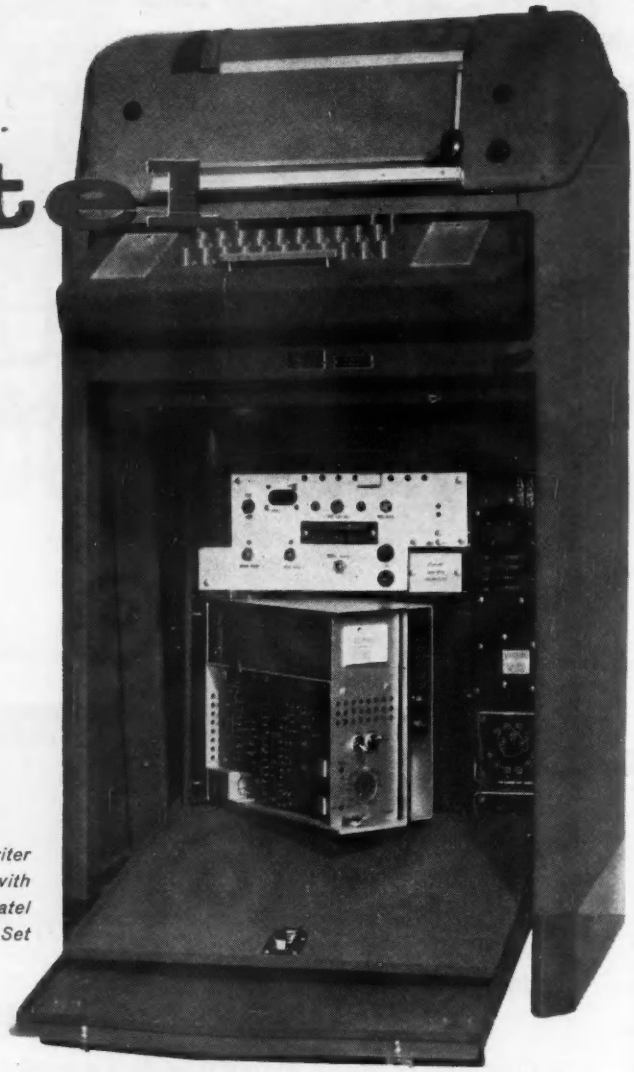

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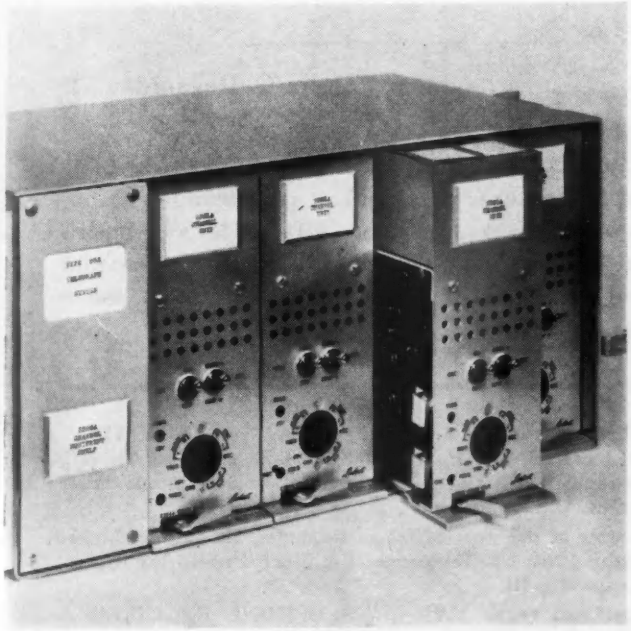

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the telephone industry magazine

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The TE&M Front Cover

CHARLES C. CHAPPELL (center), president of the Orange County Telephone Co., Middletown, N. Y., presents gift to MISS MADELEINE M. FALLON and VERNON J. STEDNER during a testimonial dinner. Miss Fallon and Mr. Stedner retired after a total of more than 80 years of company service.

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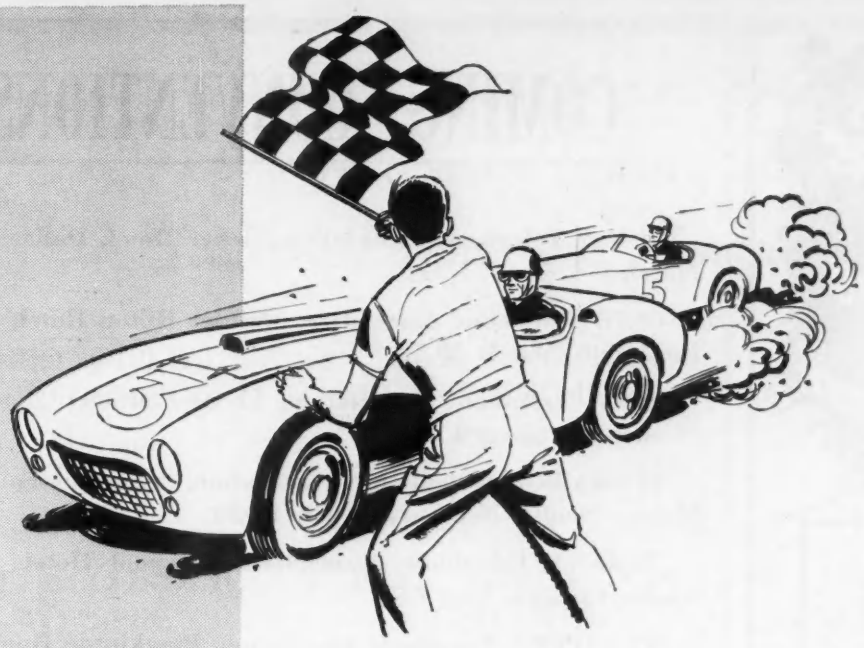

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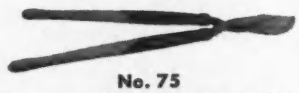

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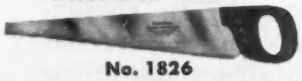

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COMING CONVENTIONS

TEXAS Telephone Association, Baker Hotel, Dallas, Texas, March 7-8.

OHIO Telephone Association, Deshler Hilton Hotel, Columbus, Ohio, March 28-30.

IOWA Telephone Association, Ft. Des Moines Hotel, Des Moines, Iowa, April 5-6.

NEBRASKA Telephone Association, Sheraton-Fontenelle Hotel, Omaha, Nebraska, April 19-20.

INDIANA Telephone Association, Claypool Hotel, Indianapolis, Indiana, May 4-5.

WISCONSIN Telephone Association, Plankinton House, Milwaukee, Wisc., May 10-11.

ILLINOIS Telephone Association, Abraham Lincoln Hotel, Springfield, Ill., May 19-20.

KANSAS-MISSOURI Telephone Associations, Town House, Kansas City, Kans., May 23-24.

PENNSYLVANIA Telephone Association, Bedford Springs Hotel, Bedford Springs, Pa., June 6-7.

CALIFORNIA Telephone Association, Fairmont Hotel, San Francisco, Calif., June 8-10.

WASHINGTON-OREGON Telephone Associations, Sheraton Portland Hotel, Portland, Ore., June 16-17.

NEW YORK Telephone Association, Scaroon Manor, Schroon Lake, N. Y., June 20-22.

MICHIGAN Telephone Association, Grand Hotel, Mackinac Island, Mich., Sept. 12-13.

ARKANSAS Telephone Association, Velda Rose Motel, Hot Springs, Arkansas, Sept. 12-13.

ROCKY MOUNTAIN Telephone Association, Hilton Hotel, Denver, Colorado, Sept. 14-16.

NEW ENGLAND Telephone Association, Mt. Washington Hotel, Bretton Woods, N. H., Sept. 25-28.

NORTH CAROLINA Telephone Association, Carolina Hotel, Pinehurst, N. C. Oct. 3-4.

U. S. INDEPENDENT Telephone Association, National Convention, Conrad Hilton Hotel, Chicago, Ill., Oct. 9-12.

SOUTH CAROLINA Telephone Association, Clemson House, Clemson, South Carolina, Oct. 24, 25.

OKLAHOMA Telephone Association, Skirvin Hotel, Oklahoma City, Nov. 9-10.

FLORIDA Telephone Association, Hotel Robert Meyer, Jacksonville, Florida, Nov. 28, 29.

Watch For These Exclusive Articles In Coming Issues Of "Telephone Engineer and Management"

PRINCIPLES OF REGULATION *a four-part article by* *MARION BEATTY*	**2L-5N VS. OTHER NUMBERING PLANS** *a look at the facts by* *D. A. PERIGO*	**MAGNETIC TAPE STORAGE FOR DDD** *"how's" and "why's" by* *L. K. ARMSTRONG*
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INDUSTRY NEWSLETTER

$25,000,000 Missing

President Eisenhower's budget for fiscal year beginning July 1 includes request for $80,000,000 in new loan authorizations for Rural Electrification Administration's farm telephone program, but does not include the $25,000,000 contingency fund for telephone loans made available in fiscal 1959 and 1960. It has been reported that representatives both of commercial and cooperative REA telephone borrowers will strongly urge Congress to boost REA telephone loan authorization.

Railroad Interconnection Hearing

Fifth week of FCC railroad interconnection hearing wound up Feb. 5 with completion of cross-examination of AT&T Rate Planning Engineer *J. K. Looloian*. Hearings will resume March 21 for an estimated four or five more weeks.

Looloian's questioning occupied most of the last sessions, with time out for relatively brief testimony by President *Ernest S. Marsh* of the Atchison, Topeka & Santa Fe Railway, who keynoted importance of interconnection to his company and said the AT&T tariff in issue would cause railroad to lose it; and *R. D. Kingston*, commercial director of the General Telephone Service Corp. Kingston said there is unrestricted interconnection in only two General Exchanges, and that the organization has no "grandfather clause" problem. But he stressed that General is opposed to unrestricted interconnection of customer-owned facilities, and views any change as not being in the public interest.

Excise "Grab" Moves Into High Gear

► ***Plans to carry his campaign*** *for imposition of the local telephone excise tax by states and localities to Congress were announced last month by New York Governor Nelson Rockefeller along with scheduling of dinner conference Mar. 2 in Washington with New York Congressional delegation to urge them to support termination of the federal tax on local telephone service as scheduled June 30.*

Meanwhile, legislation substantially in accord with Governor Rockefeller's position was offered in House by Rep. Charles E. Goodell (R., N. Y.). Goodell's bill would extend 10% federal impost on local telephone service for another year, to June 30, 1961. However, it would not apply "with respect to service furnished within any state where there is a state law imposing, upon amounts paid for general telephone service, an excise tax which is determined by the Secretary (of the Treasury) or his delegate to be substantially identical, within the limits of state taxing power, to the tax imposed on amounts paid for such service" by the federal government.

Bill, if adopted, thus would permit New York legislature — or any other state legislative body — to take over telephone excise for revenue within its own borders. Federal tax would continue to apply for another year in states which took no action. Governor Robert Meyner of New Jersey, at meeting in Washington with New Jersey Congressional delegation Feb. 5, voiced his support of proposals to turn the local telephone excise taxing authority over to the states. He indicated that Governor David Lawrence of Pennsylvania, Governor Michael V. DiSalle of Ohio, and Governor William Stratton of Illinois have adopted similar views.

Complete Overhaul Ahead

Electronics will provide the means and will force a complete overhaul of telephone communications, *Don G. Mitchell*, chairman of Sylvania Electric Products, Inc., and president of General Tel. & Electronics Corp., told a luncheon meeting of Executives' Club of Chicago in the Sherman hotel last month.

"Today it means getting the right information, to the right person, at the right time — it means gathering information, processing it, and delivering it to the point where it is needed."

Mitchell further explained that in this new broad concept, "information" can mean the image of an approaching airplane on an air-traffic control radar screen, a television broadcast, a telephone conversation, the calculations of an electronic computer, the remote control of an atomic reactor. In fact, he said, it means any kind of information that an electronic device picks up and transmits to someone who wants to know what is going on.

"Some day, and our boys are working on it right now, the voice in a telephone conversation will no longer be changed to modulated electric waves for transmission," said Mitchell. "It will be broken up into tiny bits of information so it can be loaded on a cable. When it reaches its destination, we'll sort it, and deliver it to the person it's going to, who will hear it again as a voice."

The executive pointed out that every telephone number has to have a separate pair of wires connected with

the central switchboard or boards. No more than 65 percent of all the pairs are ever hooked up, he said, and only 10 percent of the wires are busy at one time.

"That amounts to only 6½ percent efficiency," he said. "One more fact: Only 5 percent of the time a line is busy is anything being said. Through the use of electronics we can increase that efficiency to about 80 percent — but the cost is tremendous and it will take time.

"In New York City, that other company (American Telephone & Telegraph) has revenues of 1 billion dollars a year. We know that it takes $4 of investment to get $1 in revenue. Therefore the cost of replacing 4 billion dollars of electro-mechanical telephone equipment with electronic facilities would be a big undertaking even for that company."

Mitchell predicted that General Telephone will have 400 million dollars in telephone revenues in 1960. He added that the company expects to net 85 millions, which includes earnings from the electronics end of the business.

Last Plane From Cuba

► ***I. W. Gleason,*** *vice pres. in charge of operations of Cuban Telephone Co., has been relieved by Cuban government from his post, it was reported last month from Havana. Colonel Gleason, who served in key capacities with U. S. Army Signal Corps during World War II, said he had been summoned by Cuban official who has been directing company since Prime Minister Fidel Castro took over government and told that "the Ministry of Communications no longer requires your services." He was last American official of company representing International Tel. & Tel. Corp., which owns majority of stock of Cuban Telephone Co., remaining in Cuba.*

Bargaining Pattern Set

Primary Bargaining Goal of Communications Workers Of America (CWA) in this year's contract negotiations will be company-paid-for health insurance based on indications given last month during annual meeting in New York City of union's collective bargaining policy committee. The 58-member group, at end of three-day conference, adopted resolution which also calls for "an adequate general wage increase," and improvements in pension, vacation and group life insurance programs in the industry, but reports from closed sessions revealed that in their discussions members of committee showed rising interest and placed great deal of emphasis on subject of health insurance.

In resolution which was finally adopted, CWA group set as a major goal in 1960 "a company-paid-for plan providing comprehensive health insurance for each communication worker, pensioner, his or her spouse and other dependents. This plan shall include hospitalization, surgical and major medical coverage."

Committee also proposed vacation program of "two weeks' vacation after one year of service, three weeks' vacation after 10 years of service and four weeks' vacation after 15 years of service," while on subject of pensions it called for "elimination of all social security deductions from pension calculations; increase all minimum pensions to $125 a month; and introduction of survivor's rights under the pension plan."

The committee also resolved "That if timely and feasible, in the opinion of the President and the Executive Board, the union shall include as a bargaining demand payment by the employer of the total cost of the life insurance program, where such programs exist, and the introduction of such programs where none exist."

More Filings To Come

► ***Approval of its methods*** *and procedures in telephone separations was asked by General Tel. Co. of Florida last month in second of what may well become series of filings with various state commissions. In filing, with Florida Railroad & Public Utilities Commission, company asked agency to use its methods and procedures as basis for an order covering toll compensation payments between General of Florida and Southern Bell Tel. & Tel. Co. First such petition was filed late last year in Ohio by General Tel. Co. of Ohio. It was understood other Independents may file similar petitions in other states.*

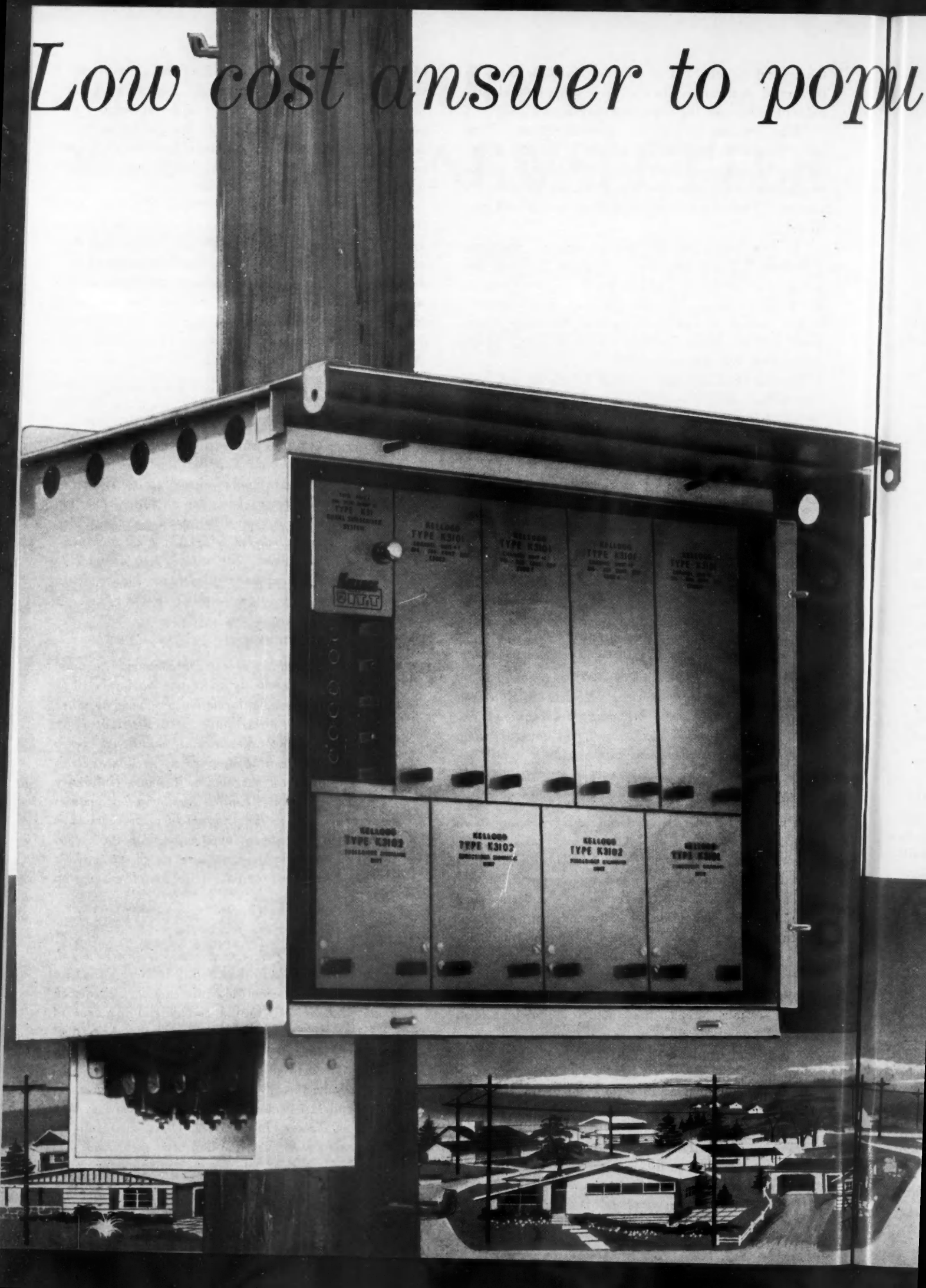
Management Seminar

► *USITA's* 1960 *Management Development Seminar will be held at University of Kansas from July* 10 *to August* 5. *Illustrated informative brochures together with application forms have been distributed by USITA's Personnel Committee. If additional copies are desired they can be obtained by writing to Dean James R. Surface, c/o School of Business, University of Kansas, Lawrence, Kan. A number of companies that participated in the program in prior years have sent in their enrollment applications for* 1960. *Persons desiring to participate are urged to send in their applications promptly.* (*See complete story on page* 59)

Industry Deaths

James W. McRae, 49, a vice pres. of *American Tel. & Tel. Co.,* collapsed and died Feb. 2 in New York City while on his way to scientific conference. . . . ***Frederick Graham McLane,*** 68, retired commercial manager of the *Western Arkansas Tel. Co.,* Russellville, Ark., died Jan. 3. Mr. McLane had suffered a heart attack in August, 1959. He retired from his position with the telephone company Nov. 30, 1959, after some 50 years in the Independent telephone business . . . *Howard A. Roe,* 70, pres. of *Telkor, Inc.,* Elyria, Ohio, died Jan. 24 from a heart attack. Mr. Roe had been associated with Bell and Independent telephone companies for many years.

Low cost answer to popu



ulation growth needs...

Kellogg Carrier

No industry knows better than America's independent telephone companies the strains that an explosive population growth can cause. Service demands tax existing facilities to the utmost and put many operating companies in a tight financial squeeze.

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The result of expert Kellogg-ITT research, both the K-31 Rural Subscriber Carrier and K-32 Open Wire Trunk Carrier have been rigorously field tested and are in active operating service throughout the country. Both Systems provide economical means to expand existing facilities without sacrificing toll standard quality.

And with Kellogg's *exclusive* repeaters, carrier system mileage can be doubled (using one repeater) . . . *tripled* with two repeaters . . . or *quadrupled* with three repeaters! You'll find, too, that Kellogg Carrier has more exclusive features and is priced lower than any other comparable system on the market.

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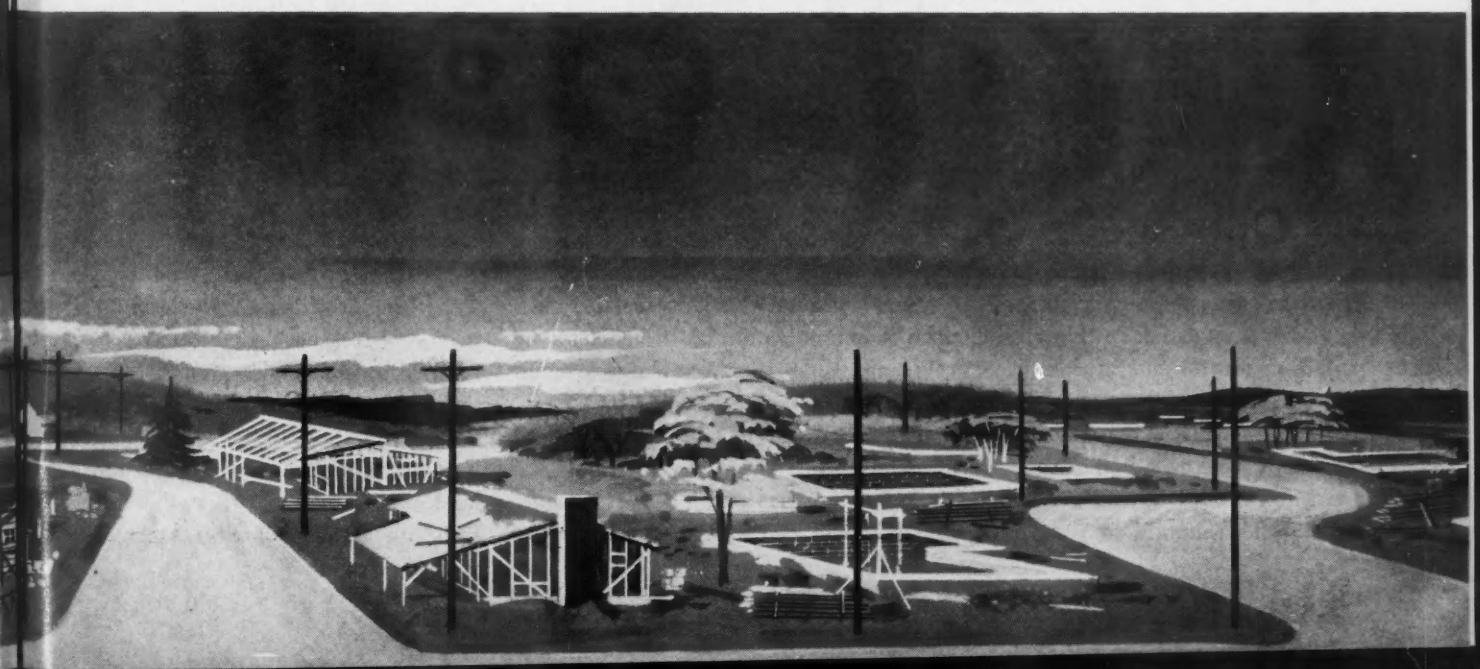
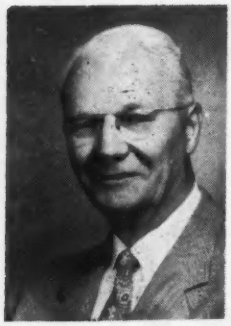




BITS FROM HERE AND THERE / By L. A. GRITTEN

INDUSTRY OBSERVATIONS

Four Months Left

SCENE IN the office of Senator Doe in Washington, D. C., some time next June:

Secretary: — "This stack is from telephone company officials. About fifty of them. They want the excise tax taken off, of course. You want to answer them yourself?"

Senator Doe: — "No! Give them Letter No. 4, courteous thanks but no commitment. I will sign them."

Secretary: — "This pile is from the hoi polloi. Anything from excited housewives to small town merchants, by the look of them. They're mad about the telephone tax, too."

Senator Doe: — "How many?"

Secretary: — "More than two thousand, so far, and they are coming in faster all the time."

Senator Doe: — "Phew! I thought so! That does it! Hold up those letters until I talk to the committee. We've got to let that repeal stay put and get that telephone service tax off our necks."

Something like that may happen — if we redouble the efforts we made last year. If we rest on our laurels, it will not. The proponents of the telephone tax have the backing of a presidential request for its continuance. If we content ourselves with trite expositions addressed to telephone people, and essays signed by company officials on company letterhead, to legislators amply equipped with waste baskets, then that June 30 termination date will fail to terminate. There are not enough of us. Politicians are not excited by the beliefs of industry representatives, as such; only voters count.

Our success will depend upon the number of voters who personally demand of their congressmen that they adhere to the June 30, 1960 repeal of the telephone service tax.

It is a selling job; and the hard way is the only way. Every telephone company should hire salesmen, or detach available employes with selling ability, to go out and ring doorbells and talk to people at meetings. If we use the four months left to us for something like "Fuller Brush tactics," we may eliminate that tax; but letters from a few thousand telephone officials will not!

"VITAL LINKS IN A VITAL CHAIN"

"THE MANY telephone companies and systems range from tiny ones with less than 100 telephones to those in metropolitan areas with thousands. Lines of copper, steel and microwave reach into every city, village or cross roads community and along every highway and country lane, connecting the millions of telephones into one vast network of modern communication. Whether you operate a metropolitan system or a cross roads system, your system is a vital link in this vital chain of communication. A local telephone system cannot be operated as a separate unit. Your telephone company and mine are a part of the system in New York, San Francisco, London, or Berlin, and every telephone we operate should be in condition to handle calls to and from any other telephone in the world at any hour of the day or night. We are a great industry providing a great service." — C. C. PEARCE, *Riceville, Iowa, at 24th annual convention of the Oklahoma Telephone Association.*

"Leafless Forest"

IN SEATTLE, the battle still rages against the "ugly leafless forest" of utility poles. Two things deter the apostles of "everything underground now." The cost would be enormous and would probably result in tripled rates for service; and the worst offender is not the telephone company but the city-owned light and power system.

* * *

Blessing Or Horror?

DR. EDWARD L. Bortz, past president of the American Medical Association and president-elect of the American Geriatric Association, predicts that in the foreseeable future, thanks to medical science, most of us will work until we are 85 and live to the age of 100.

This may lead us to a happier and more peaceful civilization; or it could develop into anything but a blessing. It may result in a world dominated by majorities of mumbling dotards who will hang on to all the good positions, while eager "youngsters" in their forties eat their hearts out waiting for the old men to die. Our Elizabethan ancestors may have been better off, when most men lived fast and died before fifty, unrepentant and still in possession of their natural teeth.

* * *

Mad Enough Yet?

EURIPIDES wrote: "Whom God wishes to destroy he first deprives of reason." Possibly he had something like this in mind;

The U. S. Department of the Interior requests $216,000,000 for dams and irrigation programs, to put more land in production, while the U. S. Department of Agriculture earmarks

$756,000,000 to remove land from production, and the Commodity Credit Corporation budgets nearly $2,500,000,000 to take surplus produce off the market.

Don't laugh. It could end in tragedy, in our time, to us.

* * *

"A Word From Our Sponsor"

CURRENT discussions of the quality of television advertising seem to miss the point. No doubt the awakened F.C.C. and F.T.C., assisted by the advertising industry's campaign of self-purification, will result in saner TV advertisements. In the future we shall be spared much of the present trickery and inanity, when "our sponsor" displays his wares. But we believe that the ultimate issue will not be whether TV ads are good or bad, but whether advertising should have any place in a program.

The public services generally conform to an unwritten law that advertising shall not interfere with essential continuity, nor shall their advertising be forced willy-nilly upon the recipient.

In our own business, for example, our own and our customers' advertising is placed in the classified sections of directories, in magazines, newspapers, direct mail, etc. Telephone users may read it or leave it, as they may choose, without hindrance of the essential service. We do not interrupt the placing of a call with a voice saying: "Your call will be completed in one minute, after a brief word from our sponsor."

The Stop and Go signs on our highways are not complicated with delays for loudspeaker announcements of something new in lingerie or lipstick. We do not tolerate the interference of commercial advertisement in schools, churches or the better theaters.

Television, potentially at all events, is no less important. It can be the agent of a higher culture, a finer, wider outlook on life. It should never have been debased to the level of a home vaudeville show, subservient to the demands of commercial advertisers. If that implies the necessity for a state licensing system, so be it; many television users would welcome it. If the mass of the people were given a fairly-presented choice, they would be willing to pay more, to escape the unavoidable commercials and receive better programs.

"THE MOST IMPORTANT ELEMENT"

"THERE CAN be no doubt that people are the most important element of our business today. Additionally, there can be little doubt that people will continue to be the most important part of the telephone business. We all realize this but how much time and energy are we devoting to the task of training and improving our personnel?

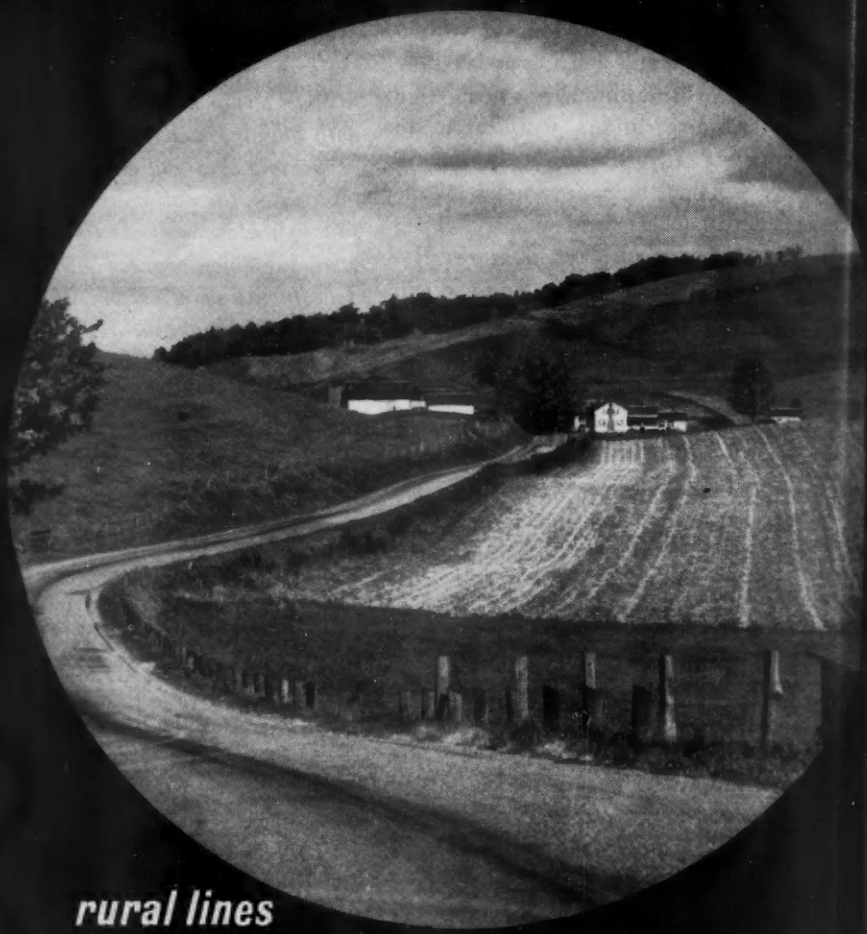
"When one reads comments such as those attributed to Mr. Charles Brower, president of Batten, Barton, Durstine, & Osborne, one of the largest advertising agencies, you can only conclude that we are not doing enough. While Mr. Brower's speech to the National Sales Executives' Convention last year has been widely quoted, I would like to quote an exerpt to give you an indication of his analysis. I quote: — *'For this, in America, is the high tide of mediocrity, the great era of the goof-off, the age of the half-done job. The land from coast to coast has been enjoying a stampede away from responsibility. It is populated with laundry men who won't iron shirts, with waiters who won't serve, with carpenters who will come around some day — maybe, with executives whose mind is on the golf course, with teachers who demand a single salary schedule so that achievement cannot be rewarded, nor poor work punished, with students who take cinch courses because the hard ones make them think, with spiritual delinquents of all kinds who have been triumphantly determined to enjoy what was known until the present crisis as the new leisure.'*

"The lesson there is, of course, a graphic one. It is also an uncomfortable lesson. Most of us can look at our own doorstep and draw some analogies with Mr. Brower's picturesque description." — PAUL H. HENSON, *vice president, United Utilities Inc., Kansas City, Mo., at 25th annual convention of the South Carolina Independent Telephone Association.*

The Unseen Spy

"THE EAVESDROPPERS," by Samuel Dash (Rutgers University Press, 1959) is a study of "bugging" and the tapping of telephone lines, by law enforcement agencies as well as by criminals. It reveals an extraordinary diversity of practice and legal acceptance. What is taboo and utterly illegal in one state is legal and accepted in another. In some states the law enforcement officers, from district attorneys to policemen, habitually violate the law in their wire-tapping techniques.

One section of the book is devoted to "The Tools." It gives detailed instructions for the "bugging" of offices and residences and the secret recording of conversations, by telephone or otherwise. If the reader wishes to know what his boss or the little gal next door really says about him, this section will leave him with no physical excuse for remaining in ignorance. — *Leslie A. Gritten.*



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General Cable manufactures a complete line of Call
telephone cables suitable for direct earth burial. line

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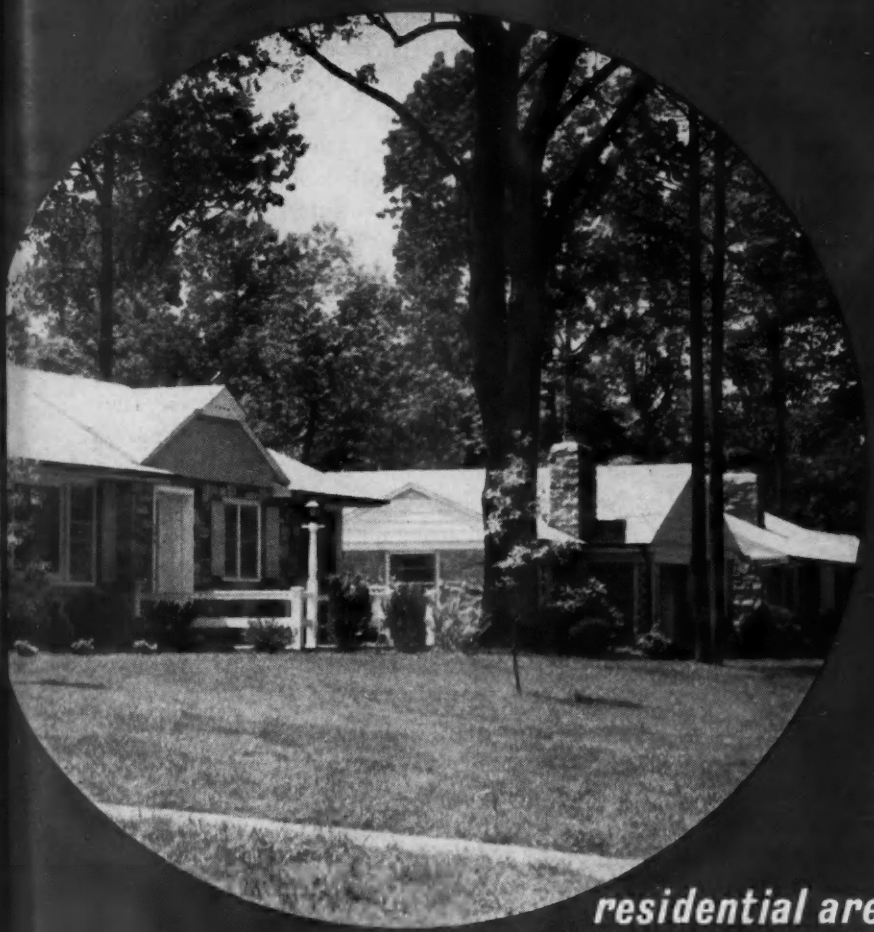

residential areas

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WASHINGTON OBSERVATIONS

By ROLAND DAVIES and FRED HENCK

Facsimile Mail Program Assumes Important Post In P. O. Plans

► ***The speed mail*** *(facsimile) program "has assumed such an important position" in the thinking of the post office department, "with its potentialities tentatively confirmed by industry," Postmaster General Arthur Summerfield told a House Appropriations subcommittee hearing, "that we have rescheduled the research and engineering budget for* 1960, *and our request for appropriations for* 1961, *in order to make the necessary funds available."*

The hearing record, made public last month, revealed great interest on the part of subcommittee members when testimony on the Post Office budget was offered in mid-January. Recent tests of the department of facsimile mail have led to the conclusion "that the speed mail project is technically and economically a possibility for future postal service," Summerfield told the subcommittee. "Like all research and development projects some technical difficulties were encountered, but the feasibility of the use of this technology is definitely indicated."

Trouble Ahead For N. Y. Excise Program

Even if Congress should agree to relinquish the local telephone excise tax as a federal levy, Governor Nelson Rockefeller would have difficulty obtaining approval of the New York state legislature for his program of using the tax to help support the state's education program, it was indicated last month.

It was reported that Republican members of the state Assembly, at a closed session, voted down the proposal to permit the state's largest cities, and the school districts outside them, to levy the tax and use proceeds for schools. Basic objection was reported to be that the largest cities and more populous school districts would receive most of the revenues.

Discussion of two alternatives — that the state, or individual counties, impose the tax and distribute the money among school districts on the same basis as other educational aid funds — led to the view that either would have difficulty being adopted. Democratic leaders in the legislature already have come out strongly against the proposal, declaring that the telephone tax should be permitted to expire if the federal government relinquishes it. The Democratic leaders also said they will not join in Governor Rockefeller's talks with New York Congressmen, slated for March 2.

Observers pointed out that the fact that more populous areas have more telephones, and thus would receive the bulk of revenues from the telephone tax, was a basic stumbling block to the program of the Federal-State Action Committee that the telephone tax be turned over to the states. The federal-state group later proposed an allocation formula similar to the alternative plans suggested in New York, but it was noted that such programs always present serious difficulties.

Democratic legislative leaders in New York also have gone on record against Governor Rockefeller's proposal to charge the costs of operating the state Public Service Commission to the utilities it regulates. They commented that the costs ultimately would be passed along to users, anyway.

The New York Telephone Co. described the Rockefeller commission financing proposal as "in effect an additional tax on utility users." The company pointed out that as a result of the plan, "telephone users would be obliged to pay an additional amount of nearly a million dollars a year toward the operation of the Public Service Commission . . . In view of the unfair tax load already borne by the telephone user, we do not believe this proposal is a sound one."

AT&T Distributes Cost Data For Schedule Five Hearing

► ***Cost data covering*** *data transmission channels specially designed for the SAGE system of air defense were distributed last month by the AT&T Long Lines Department in prepared written testimony to be offered in an FCC hearing slated to begin March* 15. *The hearing is in connection with Long Lines' Schedule* 5 *service tariff, with the General Services Administration due to take the principal opposing role. It is a continuation of the general private line rate investigation.*

The cost studies offered eliminated the previous allowances for group combiners on TD-2 radio relay routes, which had the effect of requiring two microwave channels for each data channel. Since SAGE cost study material was distributed in the general private line case, further experience has shown that group combiners are not needed in the 200-400 *normal TD-2 sections in SAGE service, Long Lines Chief Engineer James R. Rae testified. Still more*

Please turn to page 20

KEYSTONE Telephone Wire . . .

when and where you need it!

From many convenient locations, quality Keystone Wire is available for the needs of the telephone industry. Keystone offers a full range of Class A line wire in 50M, 85M and 135M tensile strengths. All line wires meet the specifications of A.S.T.M. and A.T.&T. and are approved by R.E.A. Your Keystone Distributor also offers a full line of galvanized bond, tie and construction wire in a full range of gauges. For quality wire—and prompt delivery—contact your nearest Keystone Telephone Wire Distributor or write direct for information.

KEYSTONE STEEL & WIRE COMPANY
Peoria 7, Illinois

Crescent Electric Supply Company
Burlington, Iowa
Cedar Rapids, Ia.
Davenport, Iowa
Dubuque, Iowa
Madison, Wisconsin
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Ottumwa, Iowa
Peoria, Illinois
Quincy, Illinois
Rapid City, South Dakota
Sioux City, Iowa
Sioux Falls, South Dakota
Spencer, Iowa
Sterling, Illinois
Waterloo, Iowa

Dakota Electric Supply Co.
Fargo, North Dakota

Joslyn Mfg. and Supply Co.
Birmingham, Alabama
Chicago, Illinois
Dallas, Texas
New Orleans, Louisiana
New York, N. Y.
N. Kansas City, Missouri
Oklahoma City, Oklahoma
Omaha, Nebraska
St. Paul, Minnesota

Kingsport Electric Co., Inc.
Kingsport, Tennessee

The Mine & Smelter Supply Co.
Salt Lake City, Utah

Line Material Industries
Milwaukee 1, Wisconsin

Nelson Electric Supply Co.
Dallas, Texas
Lubbock, Texas

Jack Pruzan Co.
Seattle, Washington

Southern Electrical Corp.
Chattanooga, Tennessee

Suttle Equipment Company
Chicago, Illinois
Lawrenceville, Illinois

Tennessee Valley Electric Supply Co.
Nashville, Tennessee

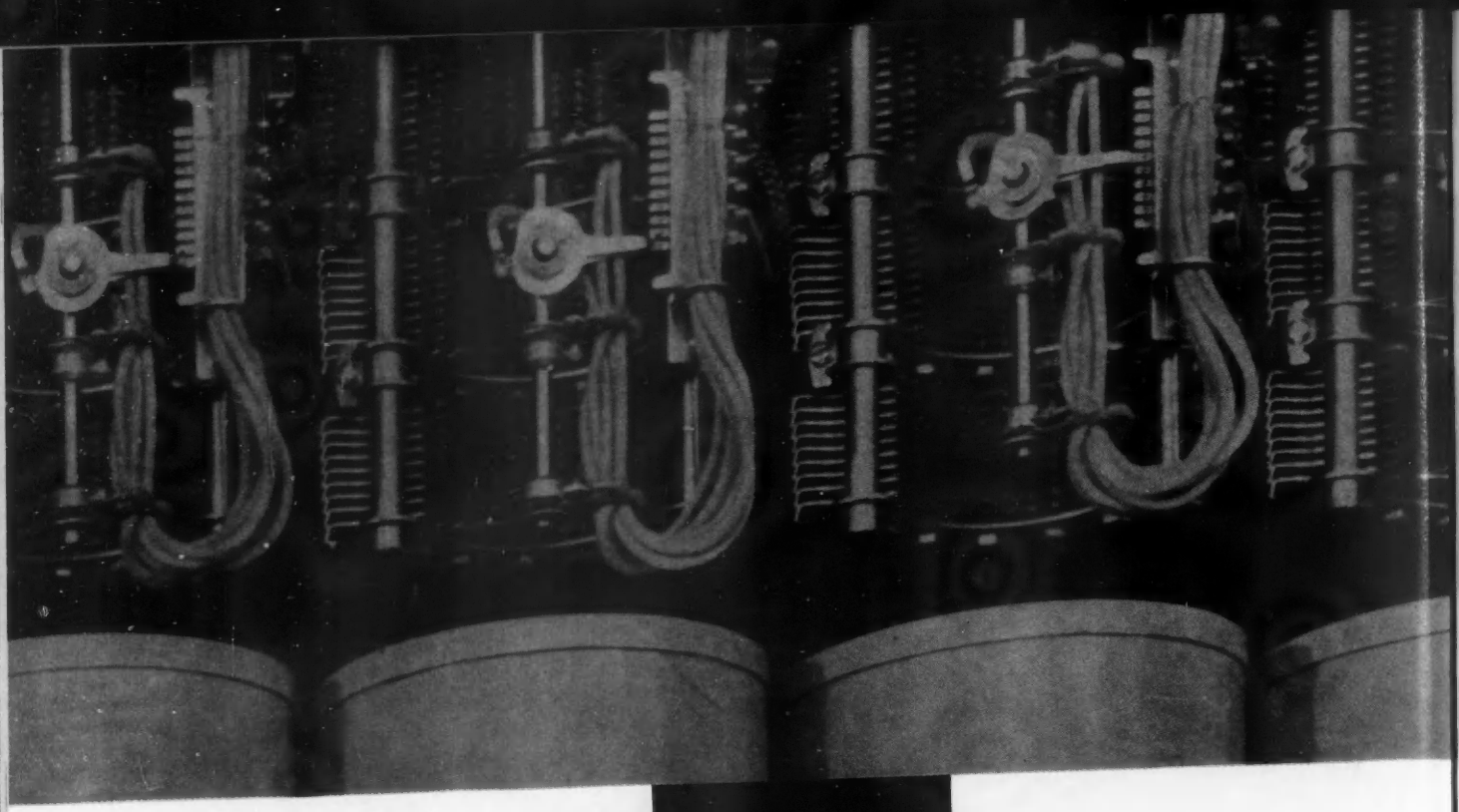
Wheeler Lumber Bridge & Supply Co.
Norfolk, Nebraska

British Ropes Canadian Fact., Ltd.
Vancouver, B. C., Canada

Marshall-Wells Canadian Companies, Ltd.
Winnipeg, Manitoba, Canada

KEYSTONE WIRE FOR THE TELEPHONE INDUSTRY

. . . by the makers of famous Red Brand Fence



Quality construction is an important factor to the man who selects dial switching equipment. That's why so many telephone men have toured our factory at Northlake, Illinois, to see the entire manufacturing process of Strowger equipment. They've seen how raw materials are carefully inspected for quality. They've observed the close tolerances to which each Strowger part is manufactured to insure ease of adjustment. They've watched the accurate control that is applied in the finishing of Strowger parts to provide good fit and lifetime protection. And, they've noted the constant inspection of these parts during every stage of production. No wonder so many telephone men choose Strowger!

QUALITY CONSTRUCTION...

another reason why telephone men choose Strowger!

FIND OUT FOR YOURSELF! The next time you're in the Chicago area, come and visit us. We'll be glad to show you through our entire Northlake plant. You'll see the unsurpassed quality and craftsmanship in the construction of Strowger. To make arrangements for your tour, write Automatic Electric Sales Corporation, Northlake, Illinois.

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

WASHINGTON

(Concluded from page 16)

experience will be needed for a definite conclusion about th longer routes, he said, but it was decided not to include the group combiners in the material distributed last month.

Furnishing cost study information, AT&T Inventory & Cost Engineer Kenneth D. Howatt reported that, on the basis of his analyses, total interstate private line services for the SAGE system provided by Bell System companies resulted in a ratio of net operating revenues to net investment of 3.6%. He said that the Bell System figure for total data services under Schedule 5 is 3.3%.

FCC Approves Sale of Three S. W. Bell Exchanges

The FCC last month granted a request of the *Southwestern Bell Tel. Co.* for public interest certification to discontinue service through exchanges at Alton and Thayer, Mo., and Mammoth Spring, Ark., when the *South Missouri Tel. Co.* takes over service at the exchanges. The South Missouri company, which has headquarters at Steelville, Mo., is to pay about $355,000 for the properties, which serve slightly under 1900 telephones.

Accounting Rule Change Would Affect Small Replacements

A change in the FCC's accounting rules for telephone companies, which will permit many small replacements of aerial cable and aerial wire to be accounted for as maintenance rather than construction, was proposed by the FCC last month at the request of the American Telephone & Telegraph Co. Comments were asked by March 14.

The proposal would increase the minimum lengths of aerial cable and wire defined as retirement units to two continuous spans of cable, instead of the present one, and five continuous spans of wire, compared with the present two.

The Commission said that "The retirement units as well as the types of plant used by wire telegraph, ocean cable, and radiotelegraph carriers vary considerably from those for telephone companies, and no changes are now proposed for these carriers; however, comments may be considered with respect to whether similar changes should be made in the retirement units prescribed for these systems."

AT&T estimated, the FCC reported, that there will be an increase in maintenance expense for the Bell System of $1,500,000 a year in connection with the proposed changes. This, however, would be offset in part by a decrease in accounting and other clerical expenses. "It appears that the proposed changes would also produce a long-run reduction in depreciation expenses," the FCC added, "because of the lengthened life of the plant in question, due to accounting for these small replacements as maintenance rather than as retirements."

NARUC To Review Telephone Separations Plans

Bell System has been asked for details of the effects of three different telephone separations plans, if they were put into effect, in latest step in National Association of Railroad & Utilities Commissioners Special Telephone Committee's review of separations matters. Request, of a staff subcommittee of NARUC and FCC, was directed by NARUC Special Telephone Committee following meetings of STC and subcommittee in Washington last month.

Separations and toll rate disparity matters occupied attention of commissioners' and staff groups almost throughout their Washington meetings. Projected study of Western Electric Co., and the FCC's private microwave decision, other matters of continuing interest, received relatively little discussion. From standpoint of communications industry, principal topic of discussion at NARUC Executive Committee sessions, other than reports of telephone group, centered around excise tax situation, and proposals that states take over local telephone tax upon its scheduled termination June 30.

Virginia Commissioner H. Lester Hooker, who heads NARUC Legislation Committee, reported on recent developments in federal-state situation, and emphasized that past pronouncements of the association on the subject oppose communications excises in principle, regardless of what taxing authority levies them. It was noted that association not only is on record in favor of repeal of federal communications and transportation taxes, but also has opposed proposals to transfer part or all of local telephone taxing authority to the states.

Industry representatives had been asked at most recent meeting of NARUC-FCC staff groups to furnish information on effects on investment and expenses of three separations plans differing from "modified Phoenix plan" now in effect — the full Phoenix, message-minute-mile, and circuit mile plans. Estimates were submitted by Bell System spokesmen at last months meeting on the estimated over-all national effect of the three plans, and the commisisoners' committee called for greatly expanded and detailed information. Target date for receipt of information is June 1, making it unlikely that anything definitive will happen until after that time.

Western Electric study was put aside for later consideration, including question of financing the work. In brief discussion of the microwave case, on which NARUC President George R. Perrine, of Illinois, and FCC Chairman John C. Doerfer have had two exchanges of correspondence, group concluded that no action can be taken until FCC decides whether to reconsider its ruling generally opening up frequency areas above 890 megacycles for private point-to-point operation.

more oomph

Like some people, some derricks have a little extra oomph. This derrick—Holan's Series 6800 has it . . . especially in the lower operating ranges.

The 6800 has extra strength because of extra lift cylinders—four instead of two. It lifts 2,000 pounds when only 5½ feet from the ground . . . body-loads 4,000 pounds. Capacity is 8,000 pounds.

More digger oomph, too

The digger here is Holan's 3-speed Series 5400. Maximum torque is 8,400 foot-pounds—tops by far among derrick-suspended diggers. With the power of the derrick and digger combined, you could bore through just about anything.

If you are in the market for power equipment with that extra oomph, get in touch with a Holan Field Representative.

Holan Corporation, 4100 West 150th Street, Cleveland 35, Ohio
Plants in Cleveland, Ohio; Griffin, Georgia; Phoenix, Arizona

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN

Revenue immediately increased 51 per cent at this booth in Platea, Pa., when General Telephone replaced the old style unit with an Alcoa outdoor installation, proving that customers definitely prefer aluminum's brighter, cleaner appearance.

"REVENUE OFTEN INCREASES 50% OR MORE WHEN WE SWITCH TO ALCOA BOOTHS,"

Reports T. J. Schultz, General Commercial Manager, General Telephone Company of Pennsylvania

"Since 1955 we have purchased 177 Alcoa outdoor booths and every one of them has more than paid its way in increased revenue, lower maintenance expense and reduced vandalism damage," says Mr. Schultz.

"An example of the way booths of Alcoa Aluminum boost revenue is this installation in Platea, Pa. Ever since we switched from an old style booth to an aluminum unit and moved the installation a few feet closer to the highway, revenue has shown an average increase of 51 per cent a month.

"Upkeep costs have also gone down since we started installing aluminum booths. Because they are corrosion resistant, occasional washing and sweeping is all that is needed to keep them clean and attractive. And vandalism, too, has been greatly reduced . . . thanks to the excellent lighting and sturdy construction of Alcoa booths."

Like many other companies, General Telephone of Pennsylvania has found Alcoa outdoor booths a sound investment and a sure road to an immediate increase in revenue. Why not find out how Alcoa booths can do the same for you? Write for free brochure and ask your jobber to show you the Alcoa Goodwill Kit—the free promotional package to help you merchandise the new booth to your customers. Aluminum Company of America 1721-C Alcoa Building, Pittsburgh 19, Pa.

Maintenance costs went down for General Telephone of Pennsylvania when it began using outdoor booths of Alcoa® Aluminum. Occasional sweeping and washing with soap and water is all that is needed to keep them smart and new looking.

"People like the lighting in Alcoa booths," says Mr. Schultz. "Excellent lighting and sturdy construction give a feeling of safety at night!"

Your Guide to the Best in Aluminum Value

ALCOA ALUMINUM
ALUMINUM COMPANY OF AMERICA

For exciting drama watch "Alcoa Presents" every Tuesday, ABC-TV, and the Emmy Award winning "Alcoa Theatre" alternate Mondays, NBC-TV

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Throughout the world...in every extreme of climate and over every kind of terrain... Collins microwave-carrier systems have proved and are proving their reliability where it counts —on the job. For information on how Collins may help you solve your own particular communications problem, contact Collins Radio Company, Texas Sales Division, 1930 Hi-Line Dr., Dallas 7, Texas.

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EDITORIAL

"The Governors Aren't Kidding"

IT TAKES nothing more than a close reading of news emanating from Washington, D. C., and from various state capitols to make the reader realize that (1) *telephone companies and their customers have been placed squarely in the middle by the latest developments affecting the telephone excise tax;* and (2) *if the tax is allowed to die as scheduled on June 30 many states will adopt it so fast the nation's telephone users will begin to wonder at the skill of their state governments at grabbing an opportunity for a new tax and making the most of it.*

Leon Roberts, USITA's Director of Information, properly summed up the present situation in his February 5 letter to USITA members when he said, "*It becomes increasingly evident that the victims want the excise tax on telephone service terminated but that many — perhaps too many — government officials and legislators want to retain and/or add to this sales tax on communications as long as the people will stand for it . . .*"

There is much evidence to support the truth of Mr. Robert's remarks and also support the head we fashioned for this TE&M editorial — "*The Governors Aren't Kidding.*"

The plain fact is — the governors haven't been kidding for some time. This latest move to transfer the telephone tax to state and local jurisdiction is similar to the plans of the Joint Federal-State Action Committee to transfer a least part of the tax on local telephone service to non-federal jurisdictions.

In our book, the line of reasoning is about the same: (1) *the telephone is a taxable commodity of which there are many in each community, providing a universal revenue source;* (2) *evasion of the tax is difficult; and* (3) *it is easy and inexpensive to collect, since the telephone companies are required to do the work.*

We will grant that to-date the Federal-States' program has failed to sell its story. But the governors of the individual states are not about to allow the Federal-State Action Committee to die by the wayside. At this writing, we understand the governors or legislative leaders of 14 states have affirmatively advised leaders of the committee of their interest in the plan.

Also, last month, Rep. Charles E. Goodell (R., N. Y.) followed through on the plans of New York Governor Rockefeller for imposition of the local telephone excise tax by states and localities by offering a bill that would extend the 10 percent federal tax on local telephone service for another year, to June 30, 1961.

However, the bill would not apply "*with respect to service furnished within any state where there is a state law imposing, upon amounts paid for general telephone service, an excise tax which is determined by the Secretary (of the Treasury) or his delegate to be substantially identical, within the limits of state taxing power, to the tax imposed on amounts paid for such service*" *by the federal government.*

This bill, if adopted, would permit the New York Legislature — or any other state legislative body — to take over the telephone excise for revenue within its own borders and the federal tax would continue to apply for another year in states which took no action.

Such a bill indicates the governors are serious. They are overlooking nothing that will help them obtain the release of the local telephone tax to states and localities.

We will admit they form a powerful group. But at the same time we believe there is another group that can be equally as powerful. That group is composed of the nation's telephone users and we believe it is high time members of this group let their governors know that (1) they are against the governors' plans to continue a temporary tax and make it a permanent part of the tax laws of each state.

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on the important extra-revenue features of the Stromberg-Carlson "1553-W" wall telephones.

You can earn extra revenue by installing them as extensions—*less ringers*—and reap the benefits of the low cost of the instrument plus high monthly return on your investment.

Our "1553-W" instrument is easy to sell. Slim, trim and compact, it fits anywhere—in kitchen, hallway, workroom or den for home users; in many convenient places for commercial subscribers.

It's a high-efficiency "500-type" instrument, available in 10 decorator colors, including black or white.

Ask your Stromberg-Carlson representative for literature, selling aids and details of our extra-revenue plan. In Atlanta call TRinity 5-7467; Chicago: STate 2-4235; Kansas City: HArrison 1-6618; Rochester: HUbbard 2-2200; San Francisco: OXford 7-3630.

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CO.

YOU START SAVING AS SOON AS YOU START INSTALLING

COLOR-CODED ANACONDA ALPETH

The easier and faster you make a lineman's job, the more time and money you save on installation, service and maintenance. This was part of the thinking behind the development of Anaconda Alpeth telephone cable.

Test splicing is costly and time-consuming, and installation test pinholes in polyethylene are almost certain to produce failure in time. Such failures mean costly maintenance.

But—new color-coded Anaconda Alpeth eliminates test splicing and broken insulation, maintaining complete moisture protection, saving installation time and labor.

You get long-range operating advantages too

Every time you add a new station, you get every installation advantage over and over again.

It's versatile. Install Anaconda Alpeth aerially with a messenger, or in underground ducts. It's ideal for rural, suburban, and urban telephone plants.

The longitudinally applied aluminum shield offers you all these extras—a virtually noise-free plastic cable . . . an excellent path to ground for induced lightning and power surges . . . an effective shield from outside interference . . . low electrical resistance . . . provides a shield with electrical characteristics which are virtually unchanged with time.

The high molecular-weight polyethylene jacket gives outstanding aging and weathering characteristics in addition to high moisture- and corrosion-resistance.

These then are some of the reasons why you start saving—and keep saving—as soon as you start installing lightweight Anaconda Alpeth. For more information and full technical data, write to: Anaconda Wire & Cable Company, 25 Broadway, New York, N. Y.

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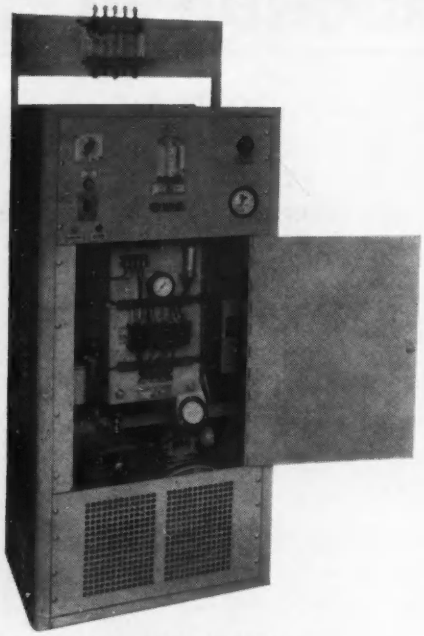
NOW! from S&G MANUFACTURING CORP.

THE MODEL "RC" DEHYDRATOR AUTOMATIC

for pressurizing aerial and underground telephone cables



NEW MODEL "RC"
Cabinet Mounted

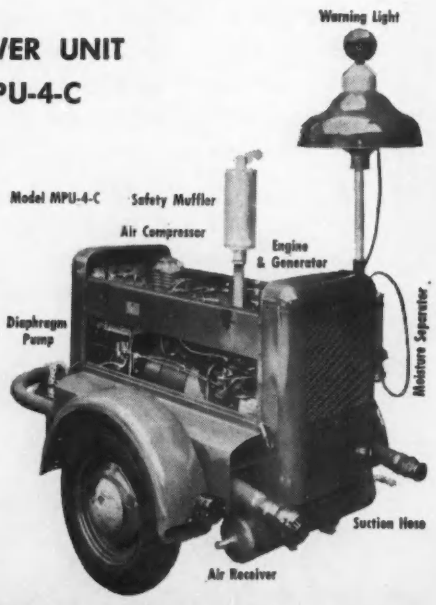
The Model "RC" Dehydrator is designed to supply dry air to telephone cables. Among its many outstanding safety features are:

- Hi-Lo pressure switch for alarm
- Humistat for alarm above 4% R.H.
- Power failure relays and separate fustat
- By-Pass Valve & alarm for excessive R.H.
- Mechanical control valve for stand-by air supply (O.P.N.) in event of power failure
- Additional safety features on air compressor
- Power supply is 115 volt, AC on the Dehydrator and Air Compressor
- Power consumption — 2 AMPS

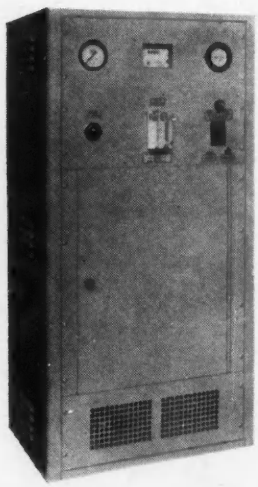
The Model "RC" and "R" Dehydrators Automatic are designed for small installations of 80 miles or less of cable. The Model "RC" is a floor mounted unit, and the Model "R" is for wall mounting. Operating voltage is 115/220 volts, 1 phase, 60 cycle, and the output is 700 standard cubic feet per day maximum, with a dewpoint of —40°F. and power consumption of 2 AMPS.

MOBILE POWER UNIT
Model MPU-4-C

- Generator (slow speed for quietness) 2500 Watt, 110- Volt DC
- Pump — 2800 GPH Diaphragm to remove seepage and drain back
- Air Compressor — to put cables under pressure for cutovers or repairs
- Furnished with or without pump and compressor



MODEL "A"
Air Compressor Dehydrator



Exchange unit equipment designed to supply chemically dry air for telephone cables, aerial and underground, this unit can supply as many as 60 cables. It is equipped with volume recording air meter, high and low pressure alarm switches, humidstat and hour meter.

- Completely automatic in operation
- Air purifier to eliminate oil mist
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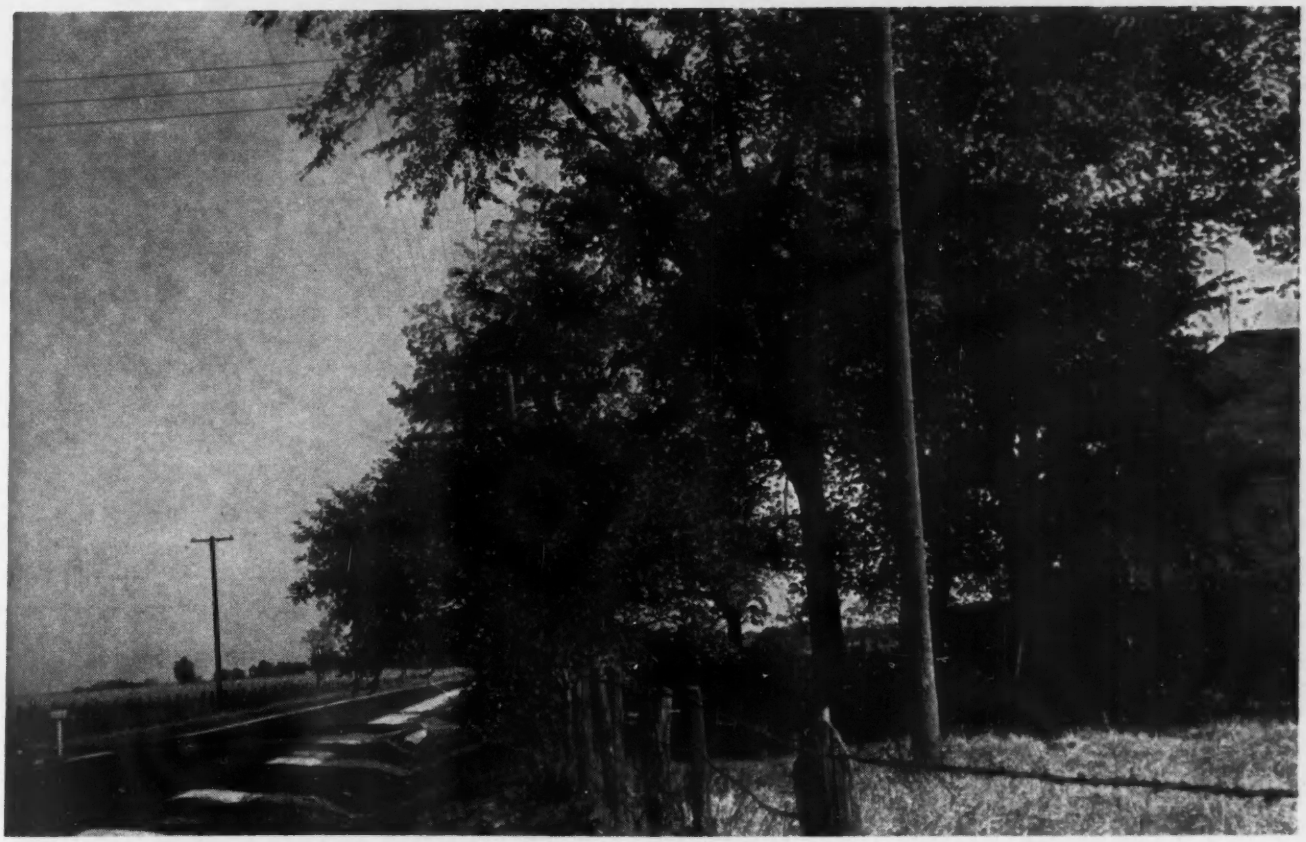


Better Answers Are Needed

By T. DeWITT TALMAGE*

The simplest way to better your lot is to do a lot better. Sometimes it costs less to MOVE AHEAD than to stand still. Knowing WHEN to do WHAT is the key to making a success of your job — and your company.

IN SPITE of the attractive aspects of the many different kinds of jobs[1] included in "telephone work," comments can be heard occasionally that are symptomatic of dissatisfaction — either real or fancied. Such remarks, as might be expected, vary in substance because of differing circumstances.

An interesting case in point that is common enough these days to warrant mentioning is that encountered in connection with conversions of manually-operated telephone switching systems to dial telephone service. In some situations of this type, you do not have to listen very attentively to hear comments along the following line of thought: "I believe that I'd like my new work more if I had a chance to understand it better," or "I would be better satisfied if I knew more about what I'm doing — or what I'm supposed to be doing."

Surprising as it may seem, the paraphrased statements just quoted are *encouraging* because they reflect a healthy attitude on the part of those expressing themselves. Sincerely made, these comments and others like them indicate interest in one's job and an admirable desire to do better work.

Now there may be some who fear that anyone who wants to do a better job has an ulterior motive in mind.

Educational Manager, Kellogg Switchboard and Supply Company, Chicago 38, Illinois.

[1]*See the section headed "The Telephone Industry and Its Workers," in the U. S. Department of Labor's bulletin No. 1215 entitled: "Occupational Outlook Handbook." This 697-page document is published by and available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price* $4.00.

Even if so, are honest ulterior motives objectionable? Under normal conditions the fair-minded answer to this question is "No." Why?

This is simply because there is nothing unusual, nothing unbusinesslike, or nothing undemocratic in the thought that a man who succeeds in doing superior work has a right to expect to have his lot in life bettered by being rewarded accordingly. This is one of the generally accepted keystone tenets upon which our free enterprise business system is based.

That is, one of the basic principles of the American way of life can be described in the thirteen-word statement: "*The simplest way to better your lot is to do a lot better.*"

Superstitious people may argue that any policy or philosophy that takes exactly 13 words to express it is bad luck. Perhaps it is bad luck for those who do not give it a fair tryout.

On the other hand, those who have taken this 13-word approach-to-work philosophy and actually "tried it on for size" have found that it pays off more often than not.

Therefore, where this mutually-rewarding policy is actively practiced on a reciprocal basis (without unnecessary, discouraging lag between cause and effect), there should be less occasion to encounter dissatisfaction arising from this source.

Such an enterprising spirit and mutually-beneficial attitude should be developed and consistently fostered; otherwise blighting frustration may set in. This could deteriorate into a self-defeating outlook something like that expressed by the sign on the old-fashioned gasoline "filling" station far out in the western desert which read: "Don't ask us for information — if we knew anything we wouldn't be here."

Alertness Pays Off, Too

MOST ALERT telephone workers — supervisors and nonsupervisors alike — realize in varying degrees that one of their important responsibilities is to constantly watch out for and recognize *early* symptoms of problems including conditions that breed frustration of workers. If for no other reason, this is obviously necessary for economical operating results because in certain instances it is cheaper to take action by nipping problems in the bud before they grow into serious, expensive proportions.

Another precaution to keep in mind when analyzing a company's operations in an area where the shoe pinches is that due care — yes, even special care — must be observed not to mistake the symptoms themselves for the actual causes of the problem. What does this mean? This means merely that symptoms, as such, and the grass-root causes producing these symptoms can be, and usually are, two different things.

For example, difficulty in attracting and hiring *entirely* suitable new employes *when* needed or the unfortunate existence of an above-average rate of turnover of present employes or both are symptoms, the causes of which must be uncovered before an adequate understanding can be had of the situation.

TELEPHONE ODDITIES
I'VE GOT TO CALL HOME BUT I'LL BE DARNED IF I CAN REMEMBER MY NUMBER
MRS. ESSIE INMAN OF SAYRE, OKLA., HAS HAD THE SAME PHONE NUMBER FOR 51 YEARS AND HAS BEEN A RURAL MAIL CARRIER 40 YRS.
A PRINTED CARD ON A TELEPHONE BOOTH AT RAMEY FIELD, PUERTO RICO, SAYS, "IF THIS TELEPHONE IS INOPERATIVE OR DOES NOT WORK PROPERLY, CALL NO. 9807."
TELEPHONE
?
THE LESSON FOR TODAY WILL BE --
PAT JENKINS OF HOPKINSVILLE, KY., MUST SPEND SIX MONTHS IN BED, BUT SHE WONT MISS A DAY OF SCHOOL WORK- PAT, 16, A HIGH SCHOOL JUNIOR, WILL MAKE USE OF A HOME-TO-SCHOOL TELEPHONE HOOKUP WHILE SHE'S TREATED FOR A RHEUMATIC HEART AILMENT
TOM HIGGINS JR.

Nothing permanent is gained unless the real causes themselves are identified and corrected.

Economic Priority Of Problems

SPEAKING now of speed, one of the quickest-to-understand phenomena that is encountered in the operation of any well-managed utility enterprise is that anything that hampers income or revenues, anything that unnecessarily increases operating or construction costs, or anything that degrades the telephone service below commercial standards or tolerable limits can be expected to receive fast and vigorous attention.

How is this generally done?

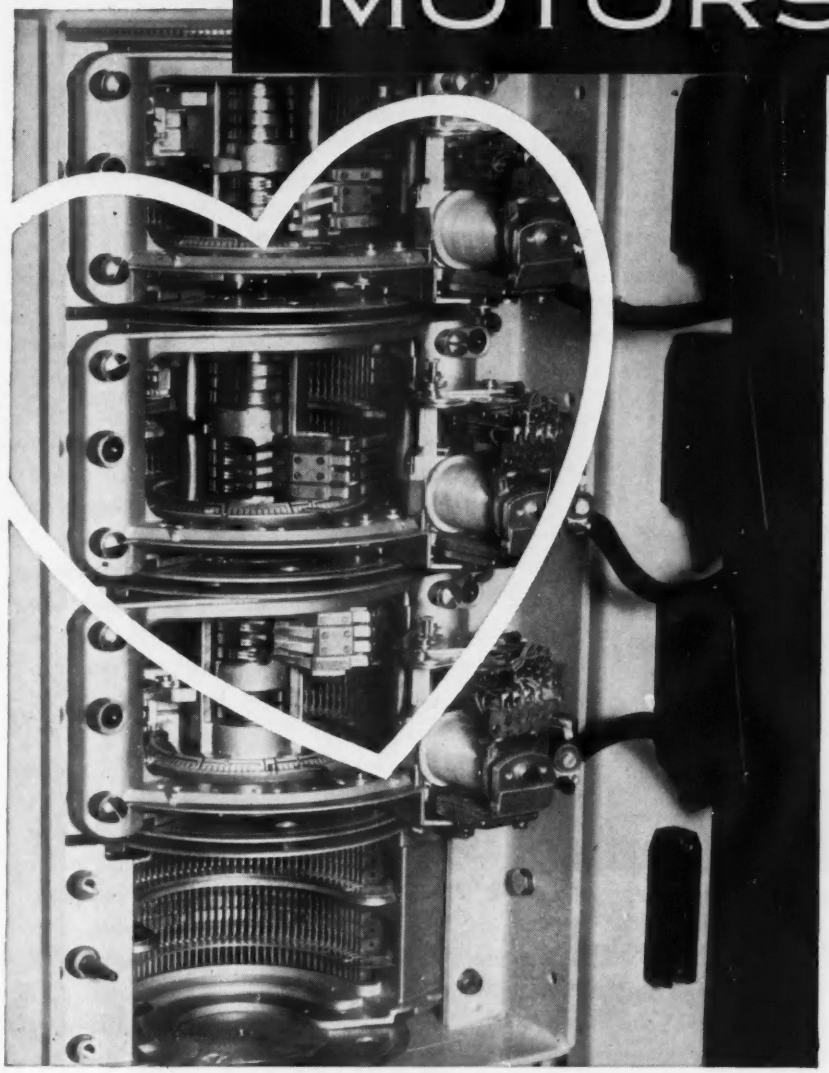
In such predicaments, the working techniques required to get corrective measures under way with a minimum of delay include possession of the knack of speedily recognizing the *complete* extent of the economic implications of each problem. It is this skill, as much as any other one trait, that earmarks the outstandingly valuable worker and distinguishes him from the worker of average usefulness.

Once the habit of reaching this essential objective has been acquired, it is then comparatively easy to classify the problems in an order of priority according to the relative economic importance of each. From then on, a methodical schedule can be followed with complete assurance that such well-aimed efforts will have the most constructive influence on the key problems *in the proper sequence*. This is a basic business requirement whose practical importance cannot be overemphasized.

Admittedly, identifying and evaluating projects is not

Please turn to page 48

MOTORSWITCH



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COMMERCIAL DEPARTMENT NOTES

by ALLAN R. STACEY

Sales Training For Installers

YOU MAY wonder how it comes about that the column headed "Commercial Department Notes" winds up talking about sales training for telephone installers. My only answer is that some of us in the telephone business are men of many hats and today we are wearing the one labeled "General Manager" and under its broad brim we are taking a look at the installer's part in expanding our service to the public.

Recently the REA put out a Merchandising Handbook for installation and repair forces. This was *Telephone Operations Manual Section* 1471. On the back cover was a motto which strongly appealed to me: "Selling Adequate Telephone Service Is Part of Every Telephone Employe's Job." It means that installer-repairmen, too, are responsible for telephone sales.

The Author, ALLAN R. STACEY, is vice-president of the Sunland-Tujunga Tel. Co., Sunland, Calif.

How Do You Measure Up?

IF YOU ARE like me, you will wonder whether the sales results being achieved by your plant department are poor, mediocre or excellent. The best method I know to judge this is to take a look at what the other fellow is doing. Thus, there are two ways to evaluate your performance. First, how does your company's business office sales effort compare with your own company's plant department sales effort? Second, how does each of these departments compare with similar departments in other companies?

Business Office vs. Plant Department

MEASURING IN terms of gross annual revenue income from each additional sale, we find that in progressive companies the plant department sales will equal 60% or better of the total sales of the business office. For example, if the business office sells $25,000 in gross annual revenue for a given period, it can be expected that the plant department will sell $15,000 or better. We say "It can be expected" but it does not come to pass unless someone pays attention to seeing that results are achieved. In the case of my own company, an early look at this comparison showed me the plant department was selling no more than 10% of the business office sales total. We had to get busy.

Measurement Of Extension Sales

ANOTHER WAY to measure the effectiveness of plant sales is to compare the number of extensions sold per hundred subscriber premises visited by plant men. Naturally, the results will vary by geographic areas of our country and types of companies. Here's a sample.

In more sparsely settled areas of the country, the range might be from two sales per hundred visits to three and one-half.

In the very rapidly growing, heavily populated areas, the range might be from four sales per hundred visits to nine.

You might like to compare yourself with a nationwide average of the Bell System. I understand that this is about six extension sales per hundred visits to premises by installers.

Measurement of Color Telephone Sales

IN SPARSELY populated, reasonably stable areas, *the entire plant department* seems to sell, *per month*, between six and eight color telephones per 10,000 telephones in service in the exchange.

In areas that are growing rapidly and having a great many moves because of shifting population, the plant department can be expected to sell 33 to 38 color telephones per month per 10,000 telephones in the exchange.

The nationwide Bell average is 18 color telephones per month per 10,000 stations.

Mr. Telephone

ASSUMING NOW that you have decided to place more telephones in the field and thus provide better telephone service to our customers, why pick on the installer-repairman to do this job? The reason is quite simple. He represents us to more people than does any other single employe. A subscriber may telephone to the business office to order service but it is an extremely rare occasion when he is not present in person to welcome the installer-repairman.

Recently there came to my atten-

tion a little two-page bulletin talking about Mr. Telephone. I have no idea what the source of the information was, but the points are certainly pertinent. It says that out of all our employes, the installer-repairman is best suited to help our sales program because he is the one person who meets our subscribers face to face every day.

It points out that while we realize our first duty to our customers is to provide *good* service, we have, of necessity in the past, had to ask the subscriber to use the *available* service. Now, most of our customers do not realize what *good* services are available and how little they cost.

Since most telephone users see only the one telephone employe — the plant man — Mr. Telephone, he is the expert and they look to him for answers. He is expected to make recommendations concerning their service. There is no doubt, then, the plant man has the door open to sales opportunity.

This little bulletin winds up with "The time is past when you, as a plant man, are an 'order taker' for one black telephone located in the center hall. Energetic sales participation will benefit the customer, the company and you. Go get 'em!"

Organizing A Plant Sales Program

THE BEST time to get started is now. This means laying out a schedule of objectives on paper and then fulfilling those objectives by applying times and dates. Here is a sample schedule from one company just beginning this type of program:

First Installer-Repairman Sales Meeting — Introductory remarks by the top management to the effect that this program is good for the company, good for the public and good for the employe. (*No program of this type can be successful without energetic support from top management.*) General explanation of the program and what the men can expect to learn. Comparison of sales results of this plant department at the present time against sales results of other companies or departments.

Second Meeting — Introduction to service needs of the customer as shown in the film "Family Affair." Group discussion of general topic.

Third Meeting — Continuation of film "Family Affair" with use of case History Studies.

Fourth Meeting — Continuation of Case Studies.

Fifth Meeting — Tour of company premises by installer-repairmen so as to develop understanding of business office, billing department and traffic department. How much better an installer-repairman can intelligently discuss an additional listing if he has seen this working in the company's traffic information department.

Sixth Meeting — Training on why we sell.

Seventh Meeting — Training on service planning the customer's premises.

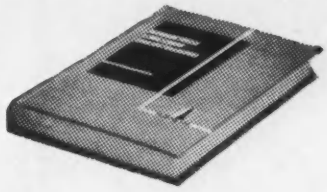
The meetings continue with various aspects of teaching installer-repairmen to sell. As you can see, many tools are available, including films, plant tours, discussion groups, case studies, role playing and any other ideas that you think are worth while.

Incentive To The Installer-Repairman

COMPANIES HAVE used many different techniques to encourage installer-repairman sales. These range all the way from the top man each month receiving a day off to $1.00 cash per extension sold to a two-weeks paid vacation in Mexico City. In my personal opinion, incentives should be used with caution because we want to teach our plant people that sales are as natural a part of the job as is correct placement of the drop wire at the subscriber's house.

Next Issue

WELL, I CAN see we're running out of time, and as old John Paul once said, "We have just begun to fight." In the next issue we'll discuss in detail why we sell, what we sell, how we sell and, in addition, study what some of the good techniques are for teaching these things to our installer-repairmen. See you then. — *Allan R. Stacey.*



Save time and work in engineering design

Just Published! Here's a practical manual of tested product-engineering aids to help you get quicker, easier solutions to everyday work problems. It offers a ready-made file of methods, formulas, tables, and charts for engineering top efficiency into devices, components, or complete products. Covers a full range of topics, from accessories and assemblies to clutches, control devices, electrical components, etc. Includes such modern developments as ultrasonics and automated assembly. *Over 1100 drawings show vital design details.*

PRODUCT ENGINEERING DESIGN MANUAL

Edited by Douglas C. Greenwood

Editor, Product Engineering Design Digest

342 pp., 8½ x 11, over 1100 illus., $9.

The book provides a storehouse of material to stimulate you to new design ingenuity, and to help you gain improved mechanisms, better assembly methods, and savings in materials and time. Over 100 topics are systematically arranged and illustrated. You can see how each device works, what it does, and how it meets design requirements. Thus, the book gives you the "feel" of a problem by showing in detail what is good, what has been done, and what is acceptable.

Gives up-to-date facts and data on resistors

Just Published! This book thoroughly covers fundamentals and needed data in the use of resistors in electronic design. You get groundwork in the basic aspects of resistance and descriptions of each type of resistor, the materials used in its manufacture, and characteristics associated with each type. Comprehensive tables give most manufacturers' data, with specific types of resistors covered in common tables. Thus, a design or components engineer can easily determine the scope of what is available. Full attention is given to such important areas as reliability in resistors, measurements, etc.

RESISTANCE AND RESISTORS

By Charles L. Wellard

Technical Director, Clifton Precision Products Co.

264 pp., 6 x 8, 82 illus., $8.50

Among the book's many special features you will find a detailed treatment of precision films as a replacement of wirewound resistors. Included, too, is information on the preparation of precision films by pyrolysis, evaporation, and reduction of oxides. Numerous charts and graphs present information that heretofore has seldom been readily available regarding the power and voltage ratings of resistors, the varieties of material used in their construction, and their many industrial applications.

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"But, Roy, you <u>said</u>

AE handles Famou

Cattle brands on your supply order? To Tiny, this idea seems very logical. You see, the boss always says that AE handles only famous brand supplies. Poor Roy—if he has enough patience, he may be able to explain the difference between famous brands and a western-style round-up.

AE doesn't sell cattle. But, we do handle hundreds of dependable, famous brand supply items. You see, we want to do supply business with you...your son...and even your grandson! And, the best way we can do this is to give you *prompt delivery* from a *large stock* of *famous brands*. Please give us a call. Give us a chance to prove that—at AE, you get all 3.

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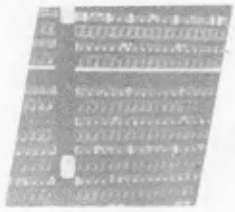


"TRAFFIC LIGHTS"

by D. A. PERIGO

Your PBX Service Advisor

IF YOU don't have Private Branch Exchange customers you don't need a PBX Service Advisor, so you can save your time by reading what *Allan Stacey* and *Ted Talmage* have to say on some neighboring pages in this issue. BUT if you have even one PBX subscriber, you *can't afford not to have a PBX Service Advisor!*

In a small company the Service Advisor might be the same guy that has a lot of other titles like Manager, Wire Chief, Construction Superintendent, Traffic Engineer, etc. — but the duties are there. You might also consider the Chief Operator (if you have an operator office) or a business office employe. If you don't have an operator office there is a possibility that you can have this work done by the company that furnishes your operator services.

The Author, D. A. PERIGO, is general traffic superintendent of the West Coast Tel. Co., Everett, Washington.

An Important Service

HAVE YOU ever had the services of a well-trained Service Advisor? Many companies are just beginning to find out the value of such an employe and perhaps you can profit too.

An improperly operated PBX can waste circuit time on both outward and inward calls. It can cause cutoffs and it can cause over-timings. It can delay your toll operators' work. It can spoil the customer's internal service — and it can blast your public relations. A PBX operator can also make or break your automatic ticketing system. When your PBX subscriber gets a new operator, who trains her? Are the old fallacies passed on to the new operator or do you take the opportunity to get the "new look" across?

What is the physical condition of the PBX? Do all the circuits work satisfactorily? Are the supervisory signals working properly? Are the cords in good shape? Is there a particular extension that is slow in answering? Why is it slow? When did you last sell this subscriber something? Has he changed his operations since the initial installation? Are a lot of incoming calls for the same extension? Does the subscriber know this may be shutting the door in a customer's face? . . . How do you get the answers without a Service Advisor?

Case Histories

NOW, we just happen to believe that anyone who can save operating time, save major maintenance, provide sales opportunities, and build a good name for your company is worth having around.

Here are a few experiences of new Service Advisors in various locations:

(1.) Over a cup of coffee an operator and a Service Advisor had this conversation: —

Operator: *"You visited the X Company yesterday didn't you?"*

Advisor: *"Yes I did. Why?"*

Operator: *"We noticed they are placing their toll calls properly today."*

Yes, what happens is just that simple — and that was the result of just the first visit on which the Service Advisor was merely getting acquainted.

(2.) *"The switchboard is operating at capacity load. Quite frequently all cords and all trunks are in use, making it necessary for incoming calls and extension users to wait for idle equipment."*

That is the start of a report which goes on to describe how an intermittent case of trouble created a difficult problem. The subscriber also had a privately maintained intercom system that had seen better days. Several departments had increased in size with no increase in telephones which resulted in delays for customers.

We don't know the final result in this case as it has not been fully decided — but there will be a new PBX and several additional extensions. There will be more than enough revenue to completely compensate for the time spent by the Service Advisor.

(3.) *"A follow-up visit here found a relief attendant on duty. She is a new employe and not yet comfortably familiar with the board so we were able to clear up several matters for her.*

"This is a very busy board and quite often all trunks were busy. This was discussed with the Office Manager and it was agreed to take a trunk

count to determine their needs for additional lines. Our business office has been notified.

"This board was experiencing trouble on incoming calls whereby extension users dialing out would meet incoming calls. This was referred to our Plant Department and a service man was dispatched at once."

Here again the report indicates the Service Advisor was helpful to the operator and the management. She created goodwill for the company and it would sound as if additional revenue would be created.

(4.) *"We answered a request from this customer to call and show the operator how to set up a conference call and also the technique used by the attendant when placing a long distance call."*

Please note — the customer needed help — and without a Service Advisor, who would do it?

(5.) *"We visited the X Hospital for the first time. They are planning an extensive remodeling program. New equipment will be required at that time as the present equipment will be inadequate."*

Without this visit of a Service Advisor the chances are pretty good that the telephone company would not have been advised of the plans until a later date — probably too late to have the equipment installed when needed — and certainly too late to help the customer with advice in planning the telephone arrangement to tie in with the remodeling.

These are just a few examples of what a Service Advisor can do:

Let's suppose you operate a small company and already have many duties. We urge you to take on some more as a Service Advisor and: —

(1.) List all the operating features of each PBX.

(2.) Know the Traffic Operating Practices.

(3.) Know the capacity of the equipment.

(4.) Watch the customer's business so you know when to add lines to a particular department.

(5.) Show the customer how to save time with his telephone system.

(6.) Be available to train new attendants.

(7.) Let the customer know you are his friend and want to be advised of the slightest difficulty in using his PBX.

(8.) Visit the PBX regularly.

In larger companies where you will appoint a Service Advisor — even if only part time — make sure you pick someone who enjoys people, has a pleasing personality, and knows her business. You will be compensated over and over for the time spent with your Private Branch Exchange customers.

Yes, YOU can afford a Service Advisor . . . *D. A. Perigo.*

Longest Operator-Dialed Telephone Call Opens New U.S.-Puerto Rico Cable System

THE LONGEST operator-dialed telephone conversation spanning 6,000 miles from San Juan, Puerto Rico across the United States to Honolulu, Hawaii, on January 26 highlighted ceremonies opening a new U.S.-Puerto Rico submarine telephone cable system.

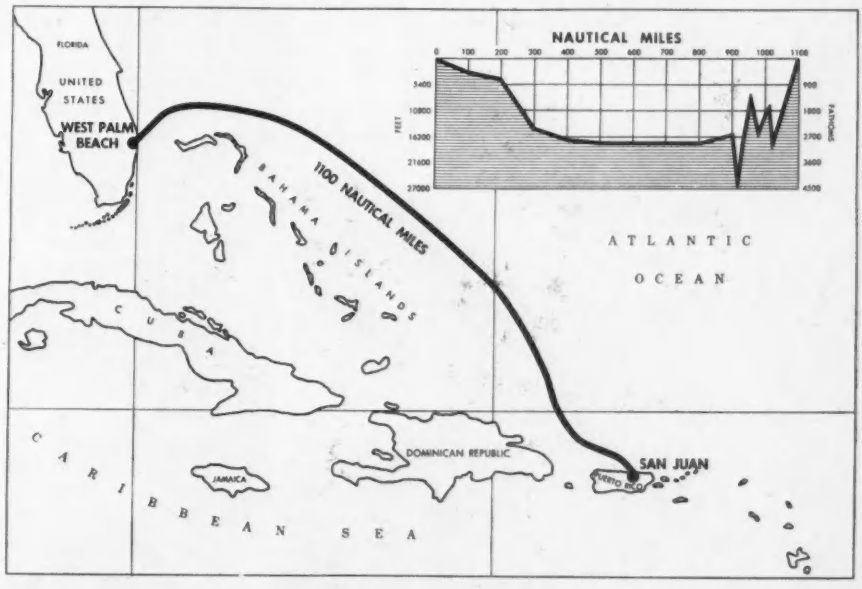
Construction of the $17,000,000 link was carried out by the Long Lines Department of American Telephone & Telegraph Co., and Radio Corporation of Puerto Rico, a subsidiary of International Telephone & Telegraph Corp. It is the deepest telephone cable in the world.

Before the cable opening, radio circuits provided the only telephone service from the U. S. mainland to Puerto Rico.

Operators in the United States now can dial directly to all phones in San Juan, which total 65 per cent of all phones on the island. San Juan operators can dial direct on 90% of all calls to the U.S. and Canada.

It was during last November and this January that the twin cables — one for each direction of speech — were laid by the cableship Monarch.

The system's terminal buildings are at West Palm Beach, Fla. and San Juan, a distance of 1,250 miles. Before the Monarch began deep-sea operations, the cables were dropped beneath the waters of the intra-coastal waterway and buried underground across Palm Beach.



Route of new U.S.-Puerto Rico telephone cable system extends from West Palm Beach, Fla., to San Juan, Puerto Rico. System comprises two cables — one for each direction of speech. From West Palm Beach, cables lie on bottom of Intra-coastal Waterway and then pass underground across Palm Beach to Atlantic Ocean. From there, deep-sea section continues 1,250 miles southeast to San Juan. Chart above shows profile of ocean bottom on which cables rest. Just northwest of San Juan, cables drop to almost five miles beneath surface when they cross Brownson Deep, the deepest valley in the Atlantic.

"SHOP-BY-PHONE" AD
TO BEGINNA

ADVERTISING NATIONALLY IN MARCH

March issues of three widely-read, widely-circulated national magazines —*McCall's, Parents'* and *Redbook*— will carry a full-page advertisement urging housewives to shop by phone when they can't leave home.

In months to come the ad will also appear in *Good Housekeeping* and *Ladies' Home Journal*—reaching, all told, over 20,000,000 households.

During the past year, Bell System advertising in department store trade magazines has been getting a lot of stores interested in the profit possibilities of selling by telephone.

Now it's time to get housewives everywhere interested in the ease and convenience of *buying* by telephone when weather or children keep them from shopping in person.

We expect this advertising to stimulate not only local calling for telephone companies across the country, but also additional business for the many stores they serve.

For the more useful and profitable we can make telephone service, the better off our own business will be.

BELL TELEPHONE SYSTEM

Shown below are some of the advertisements which have been running for the past year in department store trade magazines.

TELEPHONE ENGINEER & MANAGEMENT's

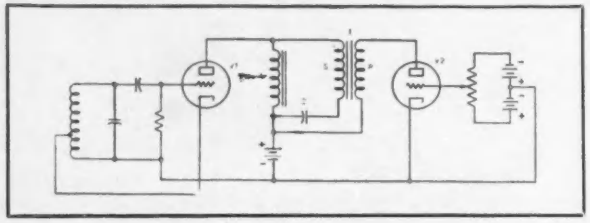
ELECTRONICS NOTEBOOK

By LEO G. SANDS

4.1-4 TRANSFORMER REACTOR

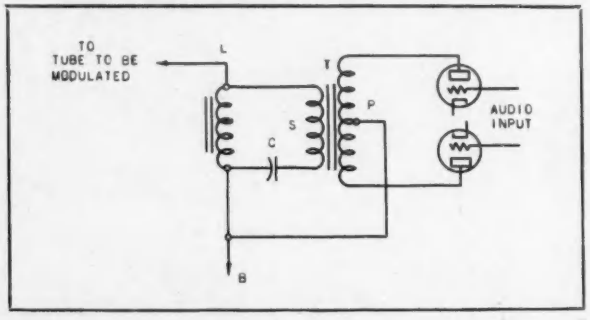
In most commercial AM systems, a reactor and a transformer are used as shown in this circuit.

Here, the d-c flow through V1 goes through L but not through the primary of T which would reduce



its impedance. The reactor and the secondary of T are in parallel as far as a-c is concerned, but because of capacitor C, they are isolated as far as d-c is concerned. The same basic addition and subtraction, as explained in 4.1-3 still apply.

In most transmitters, two tubes are used instead of one as modulators (v1). As shown here, the effect of d-c flowing through the primary of T is nullified



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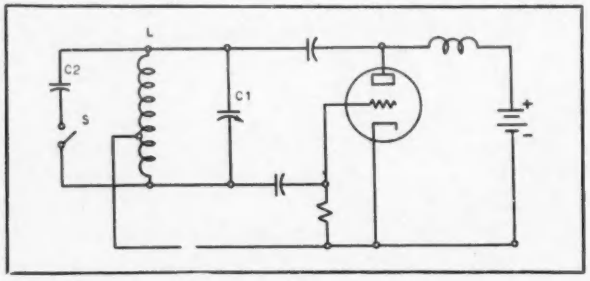
By LEO G. SANDS

since the current flow to each tube is in opposite directions and the magnetizing effect of the d-c is balanced out.

4.1-5 FREQUENCY MODULATION

In frequency modulation, the output of an oscillator (a-c) is modulated by shifting its frequency. This can be a "yes-no" or a "conditional" proposition.

In this circuit, "yes-no" is used.



When switch S is open, the frequency is determined by the values of L and C1. When switch S is closed C2 is in shunt with L-C1 and the frequency is lowered. If switch S is opened and closed 20 times per second, the FM output signal will be at the rate of 20 cps, or better yet, 20 pps (pulses per second).

If, instead, the capacity of C1 were varied an equal amount up and down at an even speed and an audio rate, a signal would be created whose amplitude remained constant but whose frequency would deviate upward and downward at an audio rate.

TELEPHONE ENGINEER & MANAGEMENT'S

ELECTRONICS NOTEBOOK

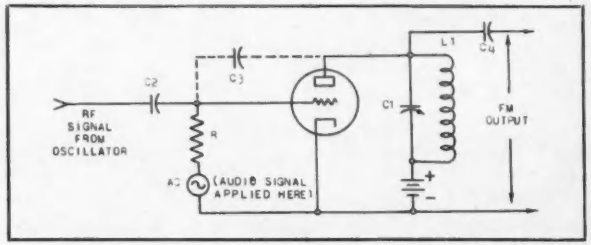
By LEO G. SANDS

4.1-6 FREQUENCY SHIFT

In FM telegraph carriers, the frequency is shifted abruptly from one frequency to another. This is known as "frequency shift." It may be accomplished electronically or abruptly with a relay.

4.1-7 PHASE MODULATOR

In commercial FM radio transmitters, phase modulation is employed to obtain the same effect as fre-



quency modulation. Since crystal controlled oscillators' frequency can be varied only very little, it is necessary to employ phase modulation.

The current flowing through L1-C1 has two out-of-phase components. One of these is the signal that leaks through the modulator tube because of the capacitance between the grid and plate, as symbolized by C3. Because of the small valve of this capacitance, phase shift occurs. The other is the amplified output of the modulator tube which is 180° out of phase with the input signal which comes from the oscillator through C2, developing a voltage across R.

More Data For Your "Electronics Notebook" in the Next Issue.

Supplies! When you need them most

"MOON": Hello, Ed. Glad to hear your voice! We were afraid that hurricane might have you folks in real trouble.

ED: Well, we're in trouble, believe me, right up to our cross-arms, Moon.

"MOON": Sorry to hear it, Ed. What can we do to help?

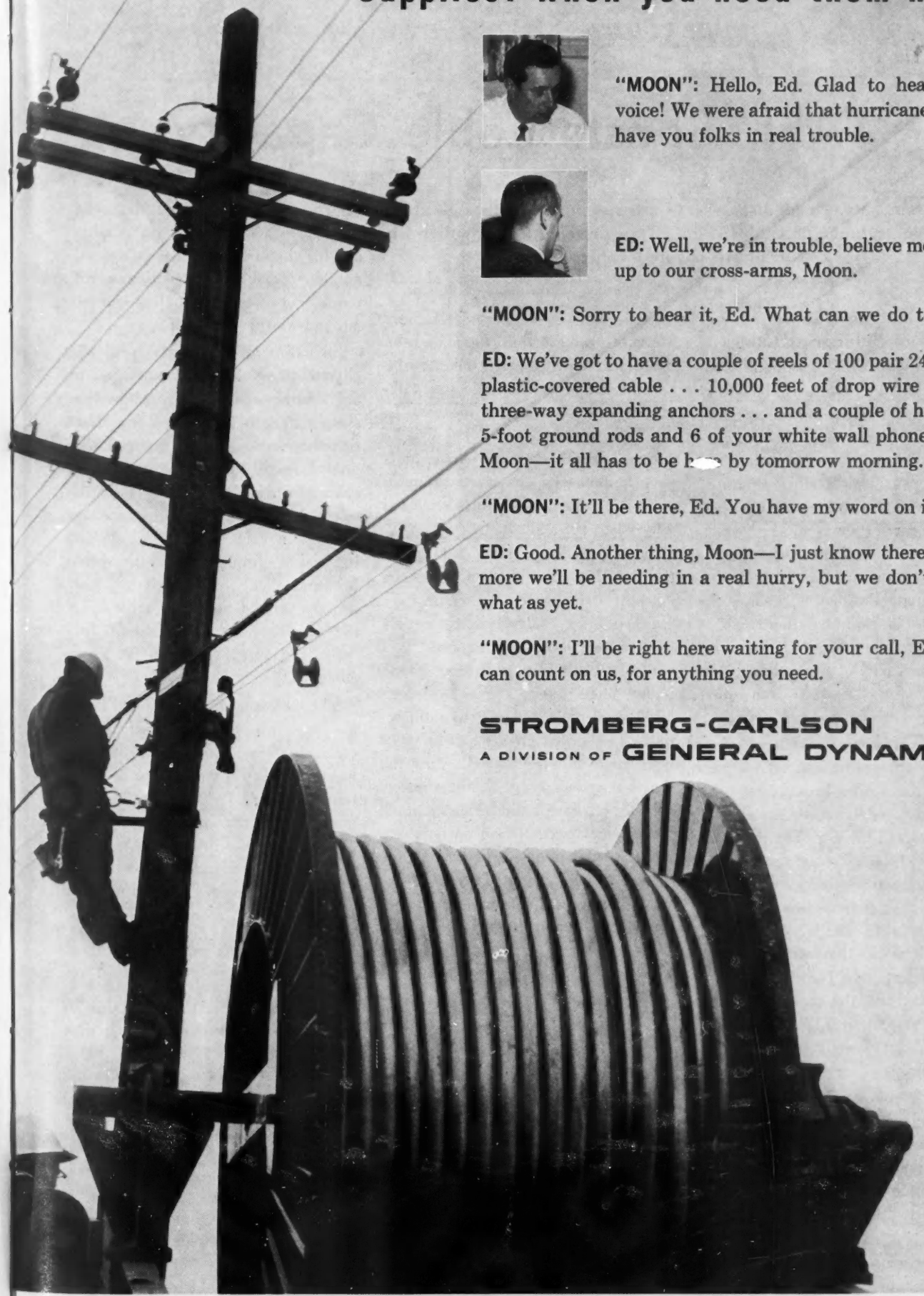
ED: We've got to have a couple of reels of 100 pair 24-gauge plastic-covered cable . . . 10,000 feet of drop wire . . . 50 three-way expanding anchors . . . and a couple of hundred 5-foot ground rods and 6 of your white wall phones. And Moon—it all has to be here by tomorrow morning.

"MOON": It'll be there, Ed. You have my word on it.

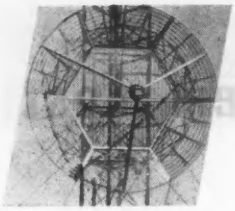
ED: Good. Another thing, Moon—I just know there's a lot more we'll be needing in a real hurry, but we don't know what as yet.

"MOON": I'll be right here waiting for your call, Ed. You can count on us, for anything you need.

STROMBERG-CARLSON
A DIVISION OF **GENERAL DYNAMICS**



TLANTA: TRINITY 5-7467; CHICAGO: STATE 2-4235; KANSAS CITY: HARRISON 1-6618; ROCHESTER: HUBBARD 2-2200; SAN FRANCISCO: OXFORD 7-3630.



PLANT ENGINEERING NOTES

by JOHN S. REED

"TASI" Boosts Cable Capacity

In this issue Mr. Reed discusses (1) a new method that doubles capacity of submarine cables; and (2) a pre-engineered splice kit for plastic-covered cable.

New Method To Double Capacity of Submarine Cables

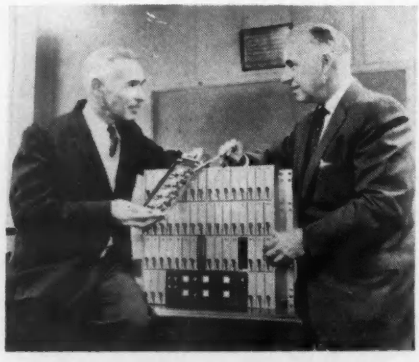
IN A TWO-WAY telephone conversation one person will be speaking only half the time on the average. If the voice currents of the two persons carrying on the conversation are carried over physically separated pairs of wire or two separate channels that are carrier derived, the person at the near end of the connection is talking over one pair of wires or one carrier channel while the person at the other end is using another pair of wires or another channel. The effect is that each half of the connection is not in use at the time one or the other is.

If there was some way to interlace the two conversations to take advantage of the speech gaps, more efficient use could be made of existing transmission facilities. The time savings would be extremely significant in the case of a large number of channels such as those in a submarine telephone cable. The larger the number of channels, the more feasible is the arrangement; thus it is more practical to increase the capacity of a 36 channel system to 72 channels than to double the capacity of a five channel system.

Bell Telephone Laboratories has developed a system called TASI (Time Assignment Speech Interpolation) which will increase the capacity of the channel groups by perhaps as much as two times.

TASI is essentially a group of high speed switches. If, for example, 36 cable channels were available, 72 talkers could be connected. If there are more talkers than channels, the equipment will connect talkers who become active by disconnecting talkers who are silent at that moment. In turn, this disconnected talker will be assigned another momentarily inactive channel when he starts to speak again. A talker will be disconnected only when he is silent.

When a person starts talking on the line, his voice actuates a speech detector. The speech detectors are scanned by a control circuit similar to a modern digital computer. This control circuit initiates a coded tone burst consisting of a group of four audio tones lasting only 10 milliseconds and which precedes the voice over an available channel. After the tone burst, the control circuit connects the same talker to the same channel. The coded tones operate switches to connect the person to the proper line at the receiving end. The tones are not heard since the listener is not connected while they are being transmitted. When a talking person is silent and his channel happens to be needed, another coded tone burst is transmitted over a separate signaling channel and severs the connection.



R. S. Hawkins (left) and F. Lohmeyer of Bell Telephone Laboratories examine a portion of the equipment making up the TASI system. The complete system occupies several large racks.

Switching of talkspurts from one channel to another is accomplished in a few milliseconds by a time-division switch. Speech is sampled for about two microseconds and the resulting pulses steered to the appropriate idle channel during the sampling by the selective operation of transistor "gates" in each channel. This short interval of sampling makes it possible to sample all active talkers 8000 times a second and then reconstruct the speech from the samples before it is transmitted over the undersea cable.

The signaling system in TASI keeps the receiving end informed of the connections that the transmitting end has established. Four groups of audio tones are employed for signaling purposes, four tones in each of three groups and three in the fourth group. Each signal comprises one and only one tone from each group. If more or less are present, an error is indicated and appropriate steps are taken to correct it.

Connection signals which precede the voice signal at the beginning of the speaker's talkspurt are sent over the same channel as the speech. Disconnect and connection checking signals are sent over a separate channel used only for this purpose.

Signals for disconnect and for checking errors are sent over a spare or a 37th control channel.

When there are more than 36 persons talking, the common control places the conversations in order so that voice signals delayed longest are

assigned a channel first. These "delays" are measured in thousandths of a second, which are too brief to be noticed.

With the complicated switching and juggling of the words and phrases of up to 72 talkers, there would appear to be some chance of interference. Actually there would be, but it would be hardly noticeable. According to probability experts, more than 36 of the 72 callers at one end of the trans-atlantic cable will be talking at the same time only about one-half of one per cent of the time. This means the average trans-Atlantic caller will have to make two calls before the equipment will cut off one of his syllables.

TASI is among the first of the new telephone systems to use transistors. About 15,000 transistors and 35,000 semi-conductor diodes will be used. Each terminal, one transmitter and one receiver, will require about 2,500 printed circuit boards. Each terminal will contain about 15 bays.

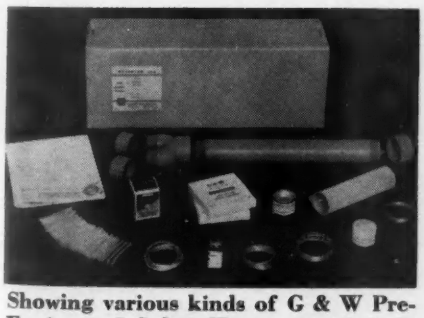
ITEM NO.	DESCRIPTION AND PURPOSE OF MATERIAL	ALUMINUM SHIELDED CABLE	COPPER SHIELDED CABLE
1	STRING SOLDER—50% lead, 50% tin. For soldering the splices in the individual conductors, for attaching Item 6, and for fastening the ends of Item 6 together	x	x
2	NOKORODE SOLDERING FLUX For use with Item 1	x	x
3	SOLID ALUMINUM WIRE For bonding the factory-applied aluminum shielding tape	x	
4	ALUMINUM STRING SOLDER For attaching Item 3, and for fastening its ends together	x	
5	ALUMINUM SOLDERING FLUX For use with Item 4	x	
6	TINNED FLEXIBLE COPPER WIRE For bonding the factory applied copper shielding tape		x
7	POLYETHYLENE SLEEVES For insulating the splices in the individual conductors.	x	x
8	POLYETHYLENE SHEETING For use as an over-all wrapping over the completed splices.	x	x
9	DESICCANT For removing moisture.	x	x
10	NOZONE TAPE For sealing Item 8	x	x
11	SATURATED FLAX TWINE For temporarily securing Item 8 and the factory-applied shielding tape	x	x
12	PLASTIC SPLICE HOUSING For protecting the joint	x	x
13	ASSEMBLY DRAWING AND INSTALLATION INSTRUCTIONS	x	x

Necessary materials for each splice are provided.

Pre-Engineered Splice Kit for Plastic Covered Cable Developed

A NEW pre-engineered splice kit has been developed for splicing plastic covered telephone cable. Kits are available for making two, three and four-way splices. Each kit contains all material required for splicing a particular joint with minimum waste, and includes a housing and caps made from a durable composition of synthetic rubber and thermoplastic resins. The housing material resists acids, alkalis, and oils and is not harmed by water. Moisture entry is prevented by tight fitting seals in end caps, which are easily applied.

As shown, the necessary materials for each splice are contained in a carton. The table indicates the materials that are provided in the splice kit.



Showing various kinds of G & W Pre-Engineered Splice Housings. *(G & W Specialty Co.)*

The components, shown below, are required for the different types of splices. Each splice housing consists of a pipe, wyes as needed, neoprene seals, plastic washers, and end caps. The housings can be used in underground or aerial construction.

These splice housings are said to eliminate the need for special skills required to make ordinary splice joints and to do away with the need for protecting the splices with paint and layers of the various kinds of tape to keep out water.

The tight fitting end caps provide a positive moisture barrier by pressing the moisture seals tightly against the cap and cable covering.

The splice fittings can be obtained for any size of cable by selecting the proper catalog number in the information provided by the manufacturer or by the specifying of the type of joint, type of shielding, and number of cable pairs, and gauge of conductors. In addition, the cable sizes should be shown on the order or else the name of the cable manufacturer, type of insulation and type of circuit should be stated. If the cable is to be armored, the type of armor should be specified.

Airtronics Publishes New Handbook

A NEW handbook (Number 1.021A) from Airtronics International Corp. shows how the company's recently developed Artificial Line provides a practical, economical solution to the many problems (bulk, length, cost, etc.) which have hitherto prohibited the use of existing "in plant" cables for telephone transmission, plant maintenance and similar training programs.

The Handbook covers: simulating a loaded or non-loaded cable pair of any length, from 600 to 39,600 feet; varying, via instant push buttons, total length, or load section lengths; introducing common irregularities such as bridged taps, mixed loading or coils omitted.

It is available for the asking from *Airtronics International Corp., Dept. TE&M, P. O. Box* 8576, *Fort Lauderdale, Florida.*

IS ELEVE
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But there's no gamble involved, as you'll discover when you check the "Big 11" advantages of NORTH NX-2 CROSSBAR.

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2. New Transistorized Trans-O-Ring Number Group*—offers the advantage of permanent directory number assignment with no restriction. Single wire control affords full flexibility in relocating lines. Only one wire to move in the Trans-O-Ring number group to relocate any number.

3. Frequency Per Terminal with Terminal Per Station.

4. Traffic Load Distribution Flexibility—only with the crossbar number group can any subscriber number be assigned to any connector terminal. This allows full flexibility in distributing traffic loads **without changing numbers.**

5. 100% Automatic Intercept—for both toll and local calls.

6. Register-Sender With Translation Optional—for tandem offices wherever alternate coding or routing is required or desirable.

7. 100% Line Lock-Out—standard on all North crossbar switchboards.

8. Consecutive Number Assignments for PBX Lines Unnecessary—eliminates numbered line reserve problems.

9. Automatic Reverting Call Identification—requires no special code or operator intercept. Switching equipment automatically recognizes this call.

10. Minimum Maintenance—virtually no moving parts to wear or service. Crossbar eliminates the heavy mechanical wear that is inherent in motor-driven or stepping-type switches.

11. Designed For Today—And Tomorrow—accommodates all modern equipment including toll ticketing and multi-frequency signaling on toll as well as local lines. Adaptable to the electronic equipment of the future.

Whether you're planning expansion or cutover, North NX-2 means unparalleled small office (30 to 3,000 lines) efficiency.

For full details, write, wire or phone

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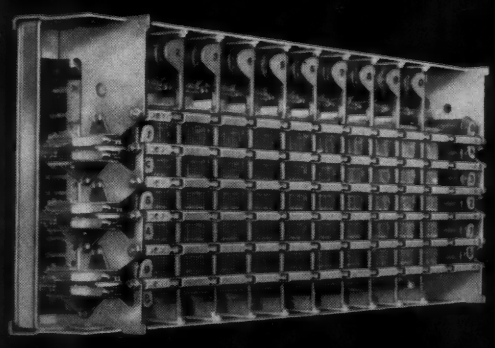

60-T-5

. . . and that's no joke where phone cord serviceability is concerned.

Maximum stretch and positive retractability mean carefree installations over the years when you select COMCO Spiraflex Cords for your handsets. Quality-built inside and tough-jacketed with rugged P.V.C. in your choice of ten decorator colors or black, they are perfect for any type service, any surroundings! Available in standard or extra lengths (10, 15 and 25 feet). But, see for yourself by putting a sample cord on your own phone. Prompt delivery assured!

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Popular Spiraflex is only one of the complete quality cord line COMCO is ready to supply. In addition, there are Nylon Jacketed Switchboard cords in four colors and operator cords in black or brown, plus black or colored P.V.C. jacketed receiver and deskstand cords, patch cords, transmitter cords, test cords, extra length cords and cords for inter-communication systems . . . all can be yours from COMCO.

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"BETTER ANSWERS"

(Continued from page 32)

always as simple as it may sound in the previous three paragraphs because some of the more obvious problems and some of those easiest to solve are not necessarily the most important from a dollar standpoint — or from a service standpoint. In fact, some of the elements making up today's critical fiscal problem of keeping outgo in balance with income *and at the same time continuing to furnish an acceptable quality of telephone service*, masked, as they are, by closely related factors, are far from obvious.

For example, the everlastingly-present human factor in all cost and service problems is the one tied directly to labor, to the output of people, and to their efficiency. Unfortunately, this type of problem cannot always be solved in its entirety by such impersonal devices as the engineer's slide rule or the accountant's interest tables. Furthermore, as is usually discovered in the long run, it is not the height of wisdom to use the Golden Rule[2] only as a last resort.

Nevertheless, in spite of good intentions, the negative economic impact and the questionable consequences of enduring a steadily increasing, if not an abnormally high, percentage of employe turnover can be underrated and even misunderstood. As a result, this part of the over-all problem of combating hidden, extra costs resulting from organizational instability is too often left to shift for itself — perhaps with the feeble hope that it will somehow solve itself if it is ignored long enough.

It should be unnecessary to add that seldom, if ever, does it work out that way.

Getting The Job Done Satisfactorily

ALL OF THE foregoing discussion brings us to the crucial point of the subject: What can be done about this combination problem of growing difficulty, namely, (A) how can correct working habits be most effectively and expeditiously instilled in the new employe, and its equally important counterpart, (B) how can the working habits of the present employe be improved?

This double-barreled question is multi-sided because the problem, like the answer, includes *more* than just acquiring modern job knowledge and skills. It includes, for example, creating and building worker morale and loyalty. A conscientious investigation of the many sides of this ever-present challenge will usually disclose more than one facet that invites serious attention and constructive action. Some practical aspects of dealing with the over-all situation follow:

First, oddly enough, the chief problem for many is to find time to spend solving problems as they are identified. Better scheduling of each individual's allotted hours will greatly assist in getting the most out of each working day.[3] Here the prime move is to firmly decide to put time in where it counts the most.

Second, real problems must be separated out from the imaginary ones. An idle statement? No, not at all. In the words of Theodore N. Vail, "Real difficulties can be overcome; it is only the imaginary ones that are unconquerable." Enough clearly presented facts will ordinarily sweep away wrong guesses and opinions, baseless rumors and conjectures, false suppositions, and like fancies.

Third, to get a flying start on working out your answers why not begin by first reviewing and considering other people's solutions to a similar situation? The sources of such answers are many and varied but certainly a popular, inexpensive source that is readily available to all is the pages of your trade publica-

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[2] *Refer to the Gospel according to St. Matthew* 7:12.

[3] "*Management of Time*," *by J. T. McCoy.* 178 *pp. Published in* 1959 *by Prentice-Hall, Inc., Englewood Cliffs, N. J. Price* $3.50.

tions like this issue of *Telephone Engineer & Management.*[4]

Fourth, if your company has two or more employes, do not try to solve *all* the problems yourself. Give the others a fair chance to solve their share of the company's problems. Proper assignment of duties and responsibilities will encourage and build valuable teamwork. To expedite doing this on a business-like basis, make sure that all employes have access to copies of the leading telephone trade publications.

Fifth, one of the interesting results of using your copy of *Telephone Engineer & Management* in the fashion recommended in previous paragraphs numbered Third and Fourth above, arises from the fact that ideas are a logical outgrowth of information. That is, sound imagination and workable ideas are extensions of your fundamental knowledge as a base. Studying telephone literature furnishes the basic information. The resulting ideas can be of such caliber that people will pay respectful attention to you when you make comments and suggestions. This reaction is a good morale booster as well as one of the very best problem-solving techniques.

Sixth, in all fairness it is admitted that every problem facing the telephone industry is not covered in any one issue of a single publication. Perhaps the very article that you need appeared in a past issue of the magazine. In that case, checking the magazine's index will quickly furnish the location of the answer.

Seventh, in case the subject is so new that it has not been explained in current or recent past issues of trade journals, all is not necessarily lost. This means that the subject is probably a good candidate for magazine treatment in the near future. This is a golden opportunity for you to submit your problem to the editor of this magazine. If the subject is of a nature that is representative of a typical, industry-wide situation, it

[4] *"How to Profit From Studying Your Industry's Publications," by T. DeWitt Talmage, Telephone Engineer & Management, June* 15, 1959. *Vol.* 63, *No.* 12. *Pp.* 38, 79-82 *and* 84.

MODERN CITIES PROTECT FIRE & POLICE DEPT. COMMUNICATIONS WITH PUREGAS DRY AIR

The illustration shows a PUREGAS Model No. 5000 installed at the City Hall, Columbus, Ohio. L to R: Mr. James Menear, Fire and Police line foreman; Mr. James Harkins, Fire and Police communications chief; Capt. Lester Whitman, Columbus Fire Dept.

PUREGAS cable pressurization proves an added safety measure in the communications systems of many municipal emergency services for their Fire and Police departments. Protecting the telephone cables from moisture with PUREGAS equipment increases daily efficiency of all communication systems and greatly reduces the chance of line failure due to storms, lightning or floods, while keeping maintenance expenditures at a minimum. The PUREGAS system of dry air pressurization can be initiated with a small budget and will be self liquidating with savings brought about by reduced operating costs.

The PUREGAS line includes Models No. 750, No. 1500 and No. 5000. Ask for specific information to meet your requirements and Bulletin 110 on Pressurization.

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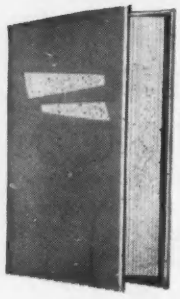

How to expand high-caliber manpower abroad

Experts give you an inside view of management around the world today

Here is a broad investigation into the managerial resources of eleven nations in various stages of industrialization. Management in each country is examined as a resource, as a system of authority, and as a class. Special attention is given to the steps that must be taken to bring about more high-level managerial manpower. This fact-filled book underscores a problem of prime interest to the whole management field.

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An International Analysis

By Frederick Harbison and Charles A. Meyers

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Now you can see and understand the inner workings of management in eleven key foreign countries. Where is international management healthy? Where is it sick? What steps can be taken to improve it — for our own good as well as that of other nations? Answers to questions such as these may have important effects on your own planning — and you get them in this challenging book.

In its frank, authoritative pages you will learn how such factors as family connections, education, unions, and government help to shape the role of the manager in Great Britain, France, the Soviet Union, Israel, Japan and six other countries.

You get a revealing picture of upper-management's relation with middle-management and with labor . . the social and political influence of managers . . . avenues of access into the managerial ranks . . . management's "gate-keepers" . . . and much more.

This book fully exposes the managerial weaknesses and strengths of the countries on which it reports. Most important, it describes the practical measures by which industrializing nations can and must develop greater management-power.

Citing the need for a professional class of managers in any industrializing country, this book identifies three different kinds of "managerial elites" and analyzes their strengths and weaknesses. How the development of such an "elite" is regarded in the Soviet Union — the second largest industrial power in the world — is discussed.

In addition to covering eleven countries, there is also a chapter on management in the United States, showing the economically dynamic outlook of American managers; and a section on the management of foreign firms in underdeveloped nations.

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City .....Zone .....State.....
Company .....
Position .....
Prices Apply to U. S.

may be scheduled for future preparation and publication.

Eighth, in the meantime, while the subject of your problem is getting formal and professional attention as described in the previous paragraph, and if your need is pressing, this magazine's readers' service department educational department, editorial department, and the advertising department are at your disposal and will give you, upon request, interim advice. Thus, any reasonable telephone problem, past, present, future, or emergency, can be handled in one way or another by your trade publications so long as the problem is broad enough to be of general concern to our industry.

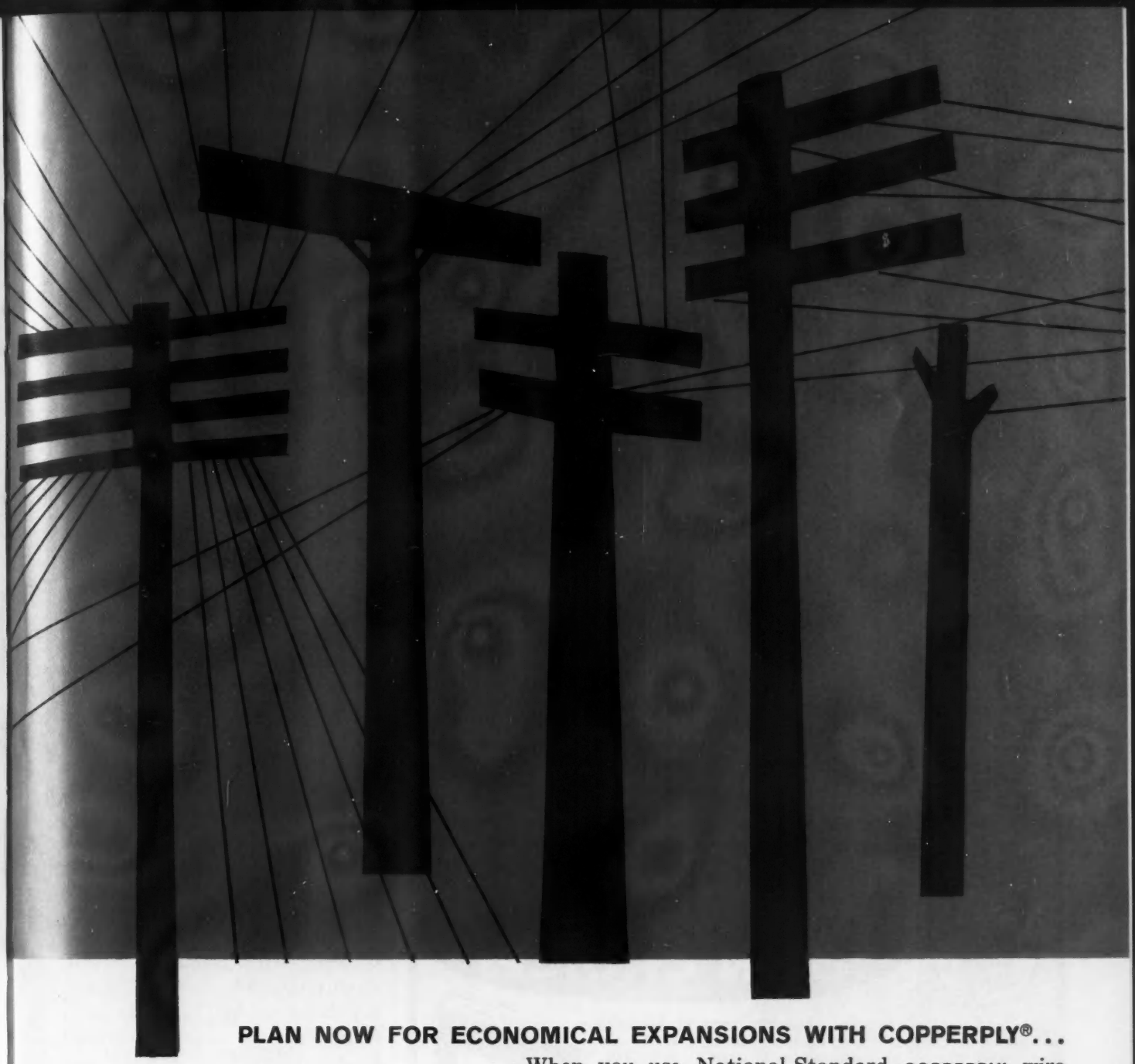
Ninth, another valuable source of information that is sometimes overlooked in the rush of events is the counsel that can be furnished by the various telephone equipment manufacturers' and suppliers' field representatives. While these men can be depended upon to have a portion, if not all, of the answers available on short notice, there may be some problems that will require time for them to make other contacts and investigations. These dedicated individuals can usually be depended upon to dredge up the answers or at least give clues as to where the information may be obtained in the least amount of time. Also, Bell System connecting company agents can often be helpful in this fashion. Many telephone men today can attribute much of their success to the liberal use of these two excellent sources of cooperation and assistance.

Tenth, one of the current telephone operating company problems is that some employes are concerned over the fact that they do not have a feeling of competency or mastery of their jobs' technical phases, because, for example, of the superseding of old equipment and methods with new equipment and methods. This situation was mentioned previously in this article with specific reference to changes in types of central office switching systems. Cooperation between operating telephone companies and dial telephone switching system manufacturers has established an effective solution to this problem which is working out very well. Interested companies may obtain the details of such a typical employe training plan by contacting the writer.

Eleventh, it must be acknowledged and remembered, however, that in themselves, skill, talent, and knowledge on a job are not enough. The worker's attitude towards the company, his co-workers, and his job must be acceptable. *In other words, every employe needs a "practical philosophy of work" to permit him to understand and adapt himself to existing working conditions.* If you, or co-workers of your acquaintance, have problems of this type which are preventing your work from prospering, it is earnestly recommended that you secure a copy of a very down-to-earth and helpful book written by Eugene Carr, entitled *"How to Make the Most of Your Job,"* which is published by Coward McCann, Inc., New York, N. Y. This 128-page, pocket-sized, 10-chapter book will significantly assist in understanding and appreciating the principles of work that will enable most jobholders to achieve greater success and happiness in their work — and even in their daily lives.

Twelfth, a survey indicates that one of the conditions which makes a worker feel happy on the job is for him to believe that every effort is being made by his employer to take the anxiety out of his working conditions and to make his job and his working relationships as pleasant as possible. The company, as an employer, should not be expected to provide this situation entirely singlehandedly without some cooperation from the employe himself. This is one of the important reasons why workers who may be concerned about this set of conditions will benefit by having the information described in the paragraph 11 made available to them. *This can be especially true in the case of the new employe who is making the important transition from school to earning a living.*

In closing, it is interesting to observe that making available communication publications to each individual employe is being done by companies



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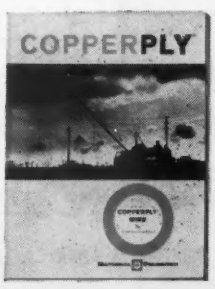
When you use National-Standard **COPPERPLY** wire (copper-coated steel wire) for conductors, you are preparing with safety for your five-year plan because additional carrier systems can be added at any future time without additional wire or construction.

COPPERPLY's exclusive electroplating process produces *uniform* coatings of copper in a variety of mil thicknesses, means that you get just the amount of copper coating you need . . . you don't pay for excess copper. And you get improved performance, too, because **COPPERPLY's** precise concentricity—uniform through the entire length—gives you better balanced circuits and longer wire life. National-Standard Company, Niles, Mich.



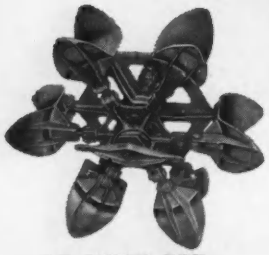
Write for Bulletin 203 that lists full size data, specifications and application photographs.

COPPERPLY
NATIONAL-STANDARD

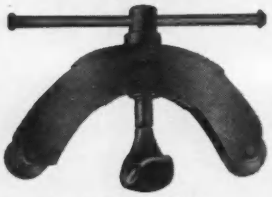
DIVISIONS: NATIONAL-STANDARD, Niles, Mich.; tire wire, stainless, music spring and plated wires • WORCESTER WIRE WORKS Worcester, Mass.; high and low carbon specialty wires • WAGNER LITHO MACHINERY, Secaucus, N. J.; metal decorating equipment • ATHENIA STEEL, Clifton, N. J.; flat, high-carbon spring steels • REYNOLDS WIRE, Dixon, Ill.; industrial wire cloth • CROSS PERFORATED METALS, Carbondale, Pa.; decorative, commercial, and industrial perforated metals.

GENERAL MACHINE PRODUCTS COMPANY, INC.

Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.



C-R POWER REEL



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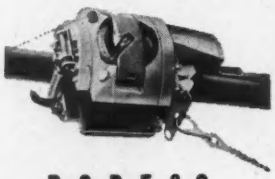

B, C, D, E, & G CABLE LASHERS

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Over 600 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate shipment

For Every Need . . . Every Budget!

MAKE YOUR OWN CHOICE!

There are complete lines of Carpenter Emergency Lights for all basic needs . . . the widest choice of powerful, dependable, durable lights available.

WARNING LIGHTS: Vehicle and stationary types . . . colored, flashing, oscillating, revolving!
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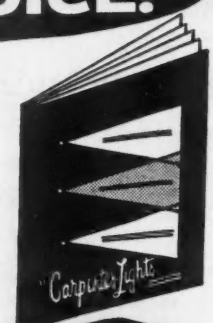


Your Guide to over 100 Emergency Lights . . . the Carpenter Catalog. Write for copy.

CARPENTER MFG. COMPANY

617 Bradley Street, Somerville 45, Mass. Telephone MOnument 6-4300

under different arrangements. Some companies are cooperating with the employe by sharing the cost of industry magazine subscriptions. Oftentimes this subscription is entered on the day that the new employe comes to work. Other companies wait until the first annual anniversary date of the worker's employment and enter his subscription to *Telephone Engineer and Management* at that time to celebrate the completion of the first year's work with them.

In either case, this concrete evidence of a company's interest in its new employe cannot help but have a beneficial effect on his morale because it gives him a feeling of "belonging" and it assists in demonstrating that the company recognizes that he has integrity and worth, even though, as a new worker, he may not have as much authority as others. Identical reasoning will apply and justify doing the same thing for all employes.

Summary

TODAY'S conditions demand the utmost teamwork from employes. Therefore, progressive telephone managements require that their employes, in addition to being skilled in their specialties, work together in harmony, free from stress and serious frictions, each pursuing his own individual tasks in a workmanlike way, but always actively aware that he is participating in a joint endeavor, banded together with a cooperative spirit, and a sense of association for a mutual purpose. A thorough appreciation of each one of these requisite considerations is necessary before a telephone worker can truly be qualified to be called "partner" by his co-workers.

Studied regularly, communication literature can help you reach the various goals discussed in this article in good time and at an economical cost. More than this, it is not fair to expect. — *T. DeWitt Talmage.*

You are invited . . . to tell TE&M authors your problems of department policy or procedure on which you'd like to have an opinion.

NEW PRODUCTS' SHOWCASE

BY DICK REYNOLDS

Revolving Aerial Ladder

SERIES HLE Revolving Aerial Ladder, has been added to the line of aerial equipment manufactured by the McCabe-Powers Body Company.

Elevation of the Series HLE is actuated by a hydraulic cylinder which is powered by an electric motor-driven pump. The motor, operated by the truck battery, is designed to work with 6- or 12-volt chassis electric system and use of the motor has no appreciable effect on life of the battery.

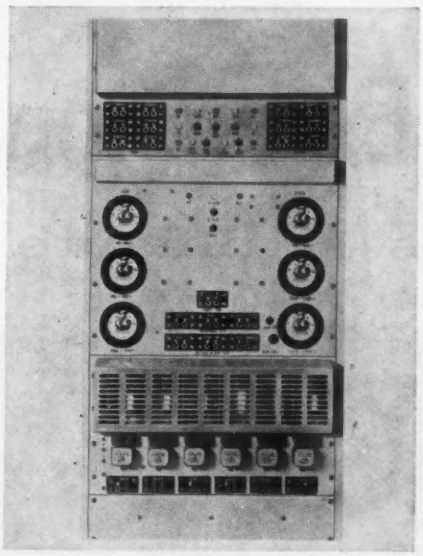
Hydraulic elevation of the ladder by means of an electric motor eliminates cost and installation of a power take-off normally required when hydraulic power is utilized on ladder equipment. Control switch can be furnished to permit operation of the ladder from the working platform.

Extension of the upper ladder is manually controlled by a handwheel and twin roller chain assembly. The upper ladder rides on rubber-covered rollers and is locked in desired position of extension by aluminum-bronze hooks which engage rungs on the lower ladder.*Check NP* 361.

Pulsing Equipment

TRANSISTORIZED multifrequency pulsing equipment has been developed by General Telephone Laboratories, to provide a rapid means of key pulsing, via tone signals, from one telephone exchange to another over toll and long distance trunks.

The new equipment's use is normally confined to traffic terminating at common-control type exchanges. It is particularly advantageous when used in conjunction with direct distance dialing facilities as the equipment is capable of handling DDD extra-long exchange numbers with speed and accuracy.



The pulsing equipment is made up of four units:

Multifrequency Pulsing Current Supply Unit contains two units, in duplicate, which are used to insure continuous operation in case of failure of one unit. Normally one unit supplies the odd circuits and the other the even circuits.

Alarm and Test Circuit houses meter-relays which continually test for tone failure. The unit features alarm lamps, test jacks, and an alarm buzzer with an alarm cutoff.

Tone Transfer Circuit responds to the alarm unit to transfer the entire load of traffic to one current supply unit.

Resistance Distribution Circuit is a terminal strip built similarly to a standard telephone terminal block, including resistors. It is designed to prevent over-loading of an oscillator unit when pulses are sent to a defective line. *Check NP* 362.

Hydraulic Derrick

RECTANGULAR side legs and an extra-long middle leg hydraulic cylinder are two of the features of the new Series 3750 Hydraulic Derrick manufactured by Holan Corporation.

The new rectangular side legs, fabricated from high tensile steel, are stronger than the tubular side legs used on the Series 3700, an earlier Holan model.

A longer middle leg hydraulic cylinder allows the derrick head to come closer to the ground for forcing the digger deeper into the soil. The integral middle leg with live boom action provides power for butt-pulling, body loading transformers, cable reels or other equipment weighing as much as 5,000 pounds, and forcing diggers into hard-frozen, rocky soil. *Check NP* 363.

Signaling Decoder

MOTOROLA has introduced a transistorized selective signaling decoder for use with its mobile two-way radios, including the recently developed transistorized MOTRAC radio.

The "Quik Call" selective calling

THIS **LEICH** PABX
FEATURE
SELLS
BUSINESS SUBSCRIBERS

Fast Extension of Incoming Ca

with LEICH's Exclusive Keyset Turrets

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Calls

Modern business needs **speed** in telephone service. That's why LEICH designed compact, modern keyset attendant's turrets that do a lightning-fast job of extending calls. The operator can extend incoming calls by simply depressing two or three keyset buttons in sequence. She can do a lot of other work while she does a **better** job of handling the telephone traffic.

Inside, outgoing, consultation calls and even city trunk transfers are made without help from the turret attendant. Inside parties simply dial the number. Standard Leich dial telephones without special buttons or equipment are used.

Leich's keyset turret almost sells itself when you show it to subscribers. Why not order an attendant's turret today to use as a demonstration model.

With Leich's 40A 12-trunk keyset turret, the operator extends incoming city trunk calls by —

A. Operating trunk key toward lighted lamp.
B. Depressing 2 keyset buttons in sequence.
C. Restoring of trunk key to normal.

12-trunk turret furnished with Leich's 40A PABX (40 lines) and 88A PABX (88 lines).

28-trunk turret provided with Leich 100T PABX (100 lines per bay, expandable).

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.
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manufacturers of telephones, switchboards and related apparatus since 1907

system enables a radio dispatcher to alert and talk to individual mobile units in his network without bothering other vehicle operators. When transmitting to a single mobile unit, the dispatcher presses a button on his control console to activate and transmit a pre-set series of tone signals. These signals are received by all mobile units and fed to decoders. The decoder in the desired mobile activates its receiver's audio circuitry upon receipt of the tone code. All others remain inactive.

If operator is working away from his vehicle, the decoder can be connected to the truck horn or a light to signal the driver that he is wanted on the radio. *Check NP* 364.

Frequency Checks

LAMPKIN Laboratories, Inc. has announced a system for measuring the frequencies of mobile-radio transmitters, to the F.C.C. split-channel tolerance of 0.0005% (above 50 MC). The new system is called the PPM Package; it consists of the Lampkin micrometer frequency meter and a modified Measurements Corp-

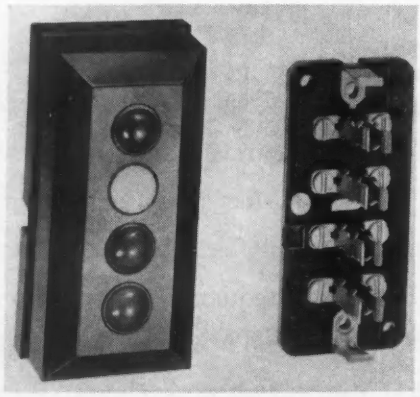
oration Model 111 crystal calibrator. When used in conjunction with a WWV receiver, transmitter-frequency checks can be made to an accuracy of better than one (1) part per million (0.0001%).

Operation consists simply of setting the PPM Meter to zero on WWV, adding an easily-computed frequency from the micrometer frequency meter, then reading transmitter-frequency deviation directly in parts per million from the dial. *Check NP* 365.

4-Light Unit

ANNOUNCED recently is the availability of the S. E. 20B3 4 lens Indicator Light for use at subscriber stations and in central offices as a visual signal.

The S. E. 20B3 consists of two pieces; the four lens plastic housing including white, green, red and am-



S.E. 20B3 Indicator light.

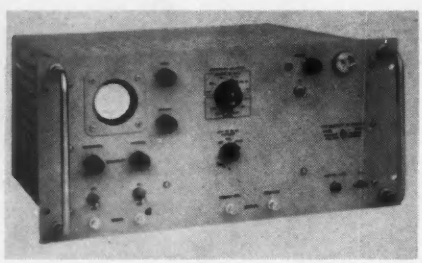
ber glass lamp caps, and a plastic base with 4 lamp jacks which take any standard switchboard lamp in 6, 12, 24 or 48 volts.

Of black plastic, the lens serves as a visual signal where four signals in one compact unit are required. *Check NP* 366.

Frequency Standard

A PRECISION frequency standard, providing a stability of $5/10^8$ parts per week and $3/10^8$ over short intervals, is now available from Hewlett-Packard Company.

Signals available include six sinu-



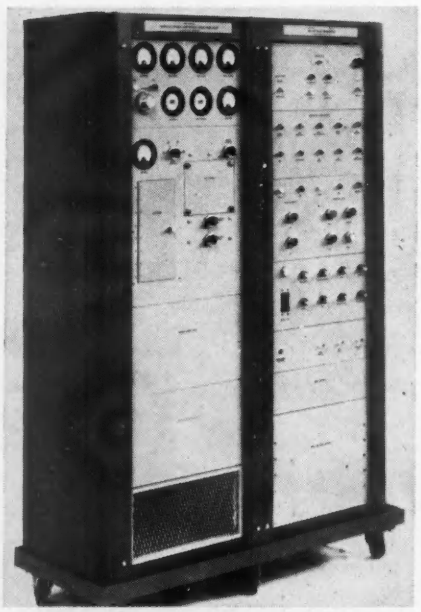
soidal frequencies (10 cps, 100 cps, 1 KC, 10 KC, 100 KC and 1 MC) and four pulse signals (10 cps, 100 cps, 1 KC and 10 KC). These may be distributed for use at different stations on a production line or in the laboratory.

The frequency standard includes a timing comb for calibrating, and for measurement of sweeps and time intervals. It also has a built-in oscilloscope for Lissajous comparisons. Rated load of the instrument is 50 ohms at 1 MC and 100 KC, and 5,000 ohms at the lower frequencies. *Check NP* 367.

Pulse Transmitter

A 1 KILOWATT VHF pulse transmitter which operates over a frequency range of 152 mc to 174 mc has been developed by Sierra Electronics Corporation.

The transmitter, Model 200A, delivers a peak pulse power of 1000 watts at a maximum duty cycle of 50% into a nominal load impedance



of 50 ohms. The unit's input modulation requirement is 1 to 4 volts peak into a 100 ohm termination. RF output pulses are constant throughout the range of input pulse voltage, and the overall RF bandwidth is approximately 1.0 mc measured at the 6 db points.

The transmitter's RF output signal between modulation pulses is 60 db or more below the 1 kilowatt output signal. The unit operates from a 208 volt, 60 cycle three phase, 4 wire input.

Model 200A includes a primary/standby configuration with pro-

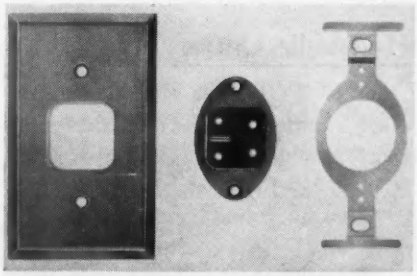
visions for automatic switchover between the primary and standby units. The entire transmitter stands 73 inches high and is mounted on a roller truck for easy portability. *Check NP* 368.

Telephone Outlet Equipment

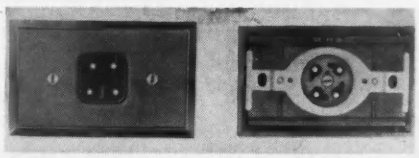
A NEW series of equipment for flush telephone outlets has been announced by Suttle Equipment Corporation.

Consisting of the flat S. E. 43A bracket designed to fit standard rectangular face plates (S. E. 19B) and the new oval S. E. 493A 4-hole jack, the equipment is designed to be mounted in wall mouldings without conduit box use.

The ends of the S. E. 43A bracket are heavily scored so that they can be broken off to fit any telephone wall plate, although if used with the S. E. 19B plate this is not necessary.



From left to right: S.E. 43A Bracket, S.E. 493A Jack, and S.E. 19B Plate.



Showing Unit Assembled.

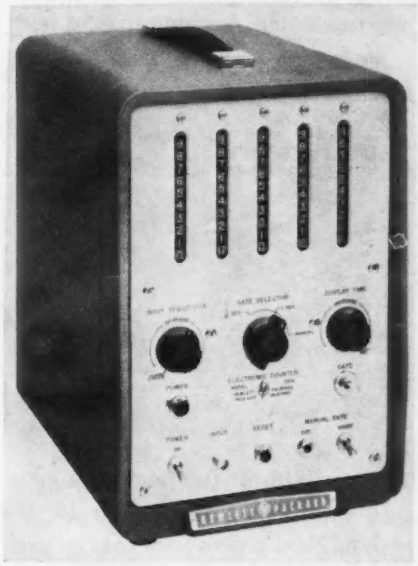
All screws required are included with each unit, packaged for easily identifiable shelf storage in a printed envelope.

S. E. 493A jackets, which are used with the S. E. 283B 4-prong plug (on the instrument cord), and the S. E. 19B plates are available in brown, ivory and the new blue-beige color. *Check NP* 369.

1 MC Frequency Counter

A NEW electronic counter with a wide variety of laboratory and industrial uses is now available from Hewlett-Packard Company.

The counter, Model 521G, automatically measures frequency and random events per unit of time or with the manual gate feature totalizes electrical events. With transducers, it also provides convenient measure-



ments of such mechanical quantities as speed, rpm, rps, weight, pressure, temperature and acceleration.

Frequency range of the instrument is 1 cps to 1.2 MC. It has an accuracy of ±1 count ± the accuracy of power line frequency — usually ±0.1%. (±0.01% with optional crystal time base installed. *NP* 370.

New In-Line Valve

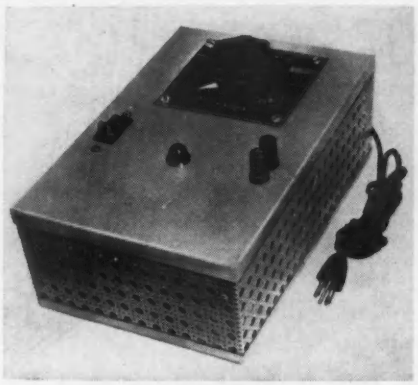
A NEW 1/2″ In-Line Valve has been developed by George W. Dahl Co., Inc. It has a flow coefficient

of 7.5. The valve is rated for 300 PSI maximum pressure at 180°F.

The In-Line Valve is 2-3/4″ in diameter and 3-1/2″ in length including hexagonal, screwed connections. The valve is ported on both sides of the operating piston and can be assembled for spring-to-open or spring-to-close operation. Springs of different rates are available to suit the operating conditions. The valve can be operated without the spring as a double acting piston for hydraulic actuation by any of the well-known displacement methods. *Check NP* 371.

Portable DC Power Supply

A NEW portable dc power supply instrument developed in the research division of Acme Electric Corp. plugs into any convenient 60 cycle, 95/130 volt circuit. The filtered direct current output has a range from 0/45 volts, and a capacity of 0/2.5 amperes. The unit is continuously ad-



justable and stabilized ±1% at any output setting regardless of any alternating current fluctuation.

This portable dc power supply eliminates the need for batteries, which frequently function eradically when used in dc testing circuits. Unit is also available in a standard rack model for permanent inclusion in lab test rack installations. *Check NP* 372.

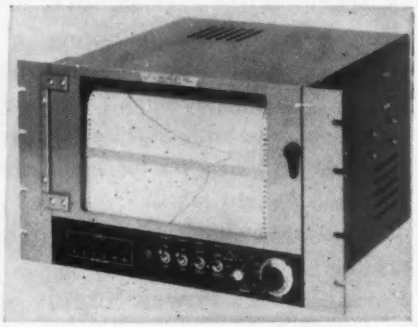
Strip-Chart Recorder

A STRIP-CHART recorder which provides instant selection, through transistor switching, of six chart speeds is now available from F. L. Moseley Company.

The new Autograf recorder, Model 80A, has a full scale sensitivity of 0.05% and a resolution and accuracy of 0.2%. Its six chart speeds (2, 4, 6, 8, 15 and 60 in/min) are selected instantly by front panel push buttons.

Model 80A's input range of 5 mv to 100 v is covered in 10 steps, or by

vernier for completely continuous span voltage control. Input resistance is 200,000 ohms/v through 10 v, and



2 megohms on higher ranges. The instrument has a full range zero set and provides pen speeds to 0.25 sec. full scale. It employs standard 120′ chart rolls. *Check NP* 373.

Neon Flasher

SUTTLE Equipment Corporation has announced availability of the SE-21B3 Neon Flasher Visual Signal which operates on incoming ringing

voltage without requiring relays for operation.

The flasher incorporates a tall clear lens, ridged vertically for light transmission, with 180° visibility on all sides. The neon lamp included provides an alternately flashing amber glow which is recognizable by users to denote an incoming telephone call. *Check NP* 374.

780 Truckster

PRODUCED by Cushman Motors the 780 Truckster is powered by a Cushman Husky 7.95 HP, 4-cycle engine and is capable of carrying an 800 pound payload. The drive train consists of an automotive style transmission, clutch and differential.

A number of improvements have been made in the 780 Truckster for 1960 including a heavier formed channel, automotive style chassis; a bigger pick-up box with greater cubage capacity; a wide front shield for driver protection; top-hinged clutch and brake pedals; and a rubber engine mounting. An optional fiber glass and steel cab has been improved with a full-vision, wrap-around windshield.

The 780 Truckster is offered in two basic models, as a bare chassis or equipped with a pick-up box — with either a manual (kick) starter or electric starter. A wide range of body

CUSHMAN 780 TRUCKSTER WITH CAB (INSET—WITH CAB AND PICK-UP BODY COVER)

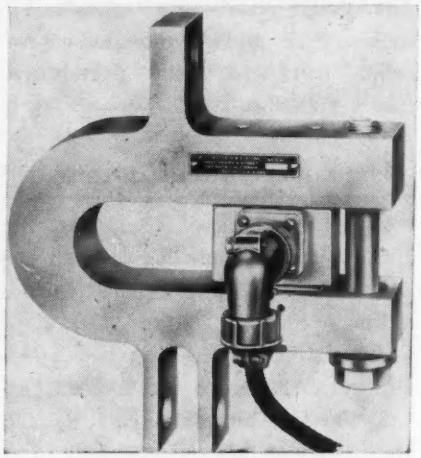
accessories to fit the job is available, including a fiber glass cover for the pick-up box; a personnel carrier seat; a flat bed with stake racks; a dump box; refrigerated box; and a "patrolster" box for police use. *NP* 375.

Force Control Switch

W. C. DILLON & Company, Inc. has announced an addition to its Force Control Switch line. The new unit incorporates attachment eye and yoke integrally machined as part of the deflection beam.

In operation, the "U" shaped beam moves outwardly. Switches contained in the housing at center are actuated at various pre-set load points by means of recessed adjustment screws located in the lower half of the beam. Micro-switches are completely enclosed in a dust and moisture-proof case fitted with an aircraft type electric coupling.

Tensile model Dillon Force Control Switches include an aircraft alloy



steel safety bolt across the end of the deflection beam and have a 4-1 safety factor. They are adaptable to numerous applications such as overload prevention on hoists or cranes, remote indications, operation of warning signals, and provide accurate, low cost automation of any applications involving force or weight. *NP* 376.

Hydraulic Cutter

H. K. PORTER, Inc., has developed a cutter for use by public utilities, electrical contractors, salvage Experts, and construction companies.

Hydraulically operated, these cutters cut through stranded cable in seconds and leave each individual strand rounded and unfrayed.

Available in two sizes, Model HCS-200 for cutting 2″ copper and aluminum cable, and Model HCS-300 for cutting 3″ cable. *Check NP* 377.

NEW PRODUCTS DEPARTMENT **3-1-60**
Telephone Engineer Publishing Corporation
7720 North Sheridan Road,
Chicago 26, Illinois
Attn: Dick Reynolds

Please send me additional information concerning the following New Products.

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COMPANY .....
ADDRESS .....
CITY ..... ZONE ..... STATE .....

USITA Personnel Committee Announces Plans For 1960 Development Program

THIS IS the time of year when telephone company managements will do well to seriously consider arranging for one or more of their key employes to submit applications for enrollment at the *Management Development Program* sponsored annually by the *United States Independent Telephone Association.*

This Program is conducted at the *University of Kansas,* Lawrence, Kans. The 1960 Program is scheduled for the four-week period July 10 to August 5. Enrollments are limited to a total of 48, and the 1960 enrollment closing date is March 1.

Brochures describing the 1960 Program were placed in the mails during December, 1959. Those interested who have not received a copy, complete with application forms, will, for a limited time, be able to obtain copies either through the offices of state telephone associations, or by writing directly to *Dr. James R. Surface, Director, USITA Management Development Program, c/o University of Kansas, School of Business, Lawrence, Kans.*

Alert Independent telephone company managements are recognizing (1) the value of participation in this important Program; (2) that while it is difficult to be away or to have a key employe away for a full four-week training period, most progress is the result of doing the difficult; and (3) that a vital part of the work which management has the obligation for doing today involves preparation for the work and developments to be confronted tomorrow.

The USITA Management Development Program is the result of several years of study and development work by USITA's Personnel Committee and by the University of Kansas School of Business. During this study and development period, members of USITA's Personnel Committee visited many universities throughout the country and were aided materially by counseling with many of our country's best experts in the field of management development work.

The Program is designed for executives who currently have important administrative responsibilities. Areas of development are grouped under three general headings — "The Functions of Administration," "The American Business Climate," and "Rate Regulation." "The Functions of Administration" portion is, in turn, subdivided to include — "Control and Financial Administration;" "Human Relations in Business;" "Merchandising;" and "Administrative Policy and Planning." The case method of instruction is used throughout much of the Program.

Important improvements being made in the 1960 Program reflect the benefit of more successful methods used in previous years and other improvements suggested by faculty and participants in previous years' Programs. The Program reflects the experience gained from a variety of successful types of executive development programs conducted in the United States and in other countries. A mock rate case in which every participant takes an important part has proved a very popular feature and it will be expanded as a part of the 1960 Program.

Faculty for the Program is comprised of experts from the faculties of Harvard University, University of Virginia and the University of Kansas. Dr. James R. Surface, formerly of the Harvard Business School faculty, now Dean of Kansas University School of Business, is director of the Program. He has had extensive experience in management development work for telephone companies and others, throughout the United States and in Canada.

Here are a few excerpts selected by representatives of USITA's Personnel Committee from questionnaires completed by participants in the 1958 and 1959 Programs: —

". . . excellent. The fact that students were all from the telephone industry permits closer scrutiny of these studies in a way that was easily understood by all students."

"I recommend that this course be a must for telephone executives."

". . . general living conditions and treatment at the University of Kansas were the finest. The faculty members, the class, and all others whom I contacted were most friendly and helpful."

"Good instructors who were willing to give assistance and did after classes. I learned more than I realized at first and more improvements will be showing in the future."

"The over-all Program was excellent and curriculum and instruction far beyond my expectations."

"The USITA Committee responsible for this Program is to be highly congratulated. I was most fortunate in being afforded this opportunity to improve my ability in the field of management."

"I highly recommend the Program. The benefits I received are continuing to grow."

"The over-all Program was extremely worthwhile and I was more than fortunate in being selected to participate."

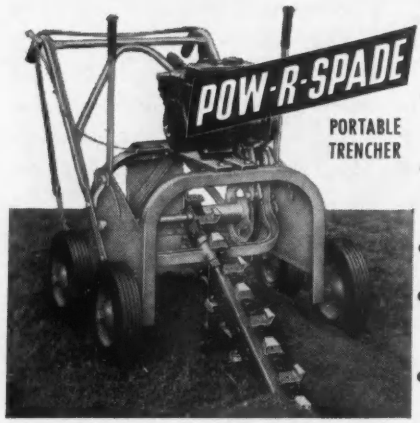
Utility Reimbursement Law Upheld By Texas Tribunal

AN OPINION handed down by the Texas Supreme Court has upheld the validity of a state law providing for state reimbursement of municipalities and public utility firms for the cost of moving utility facilities when necessitated by interstate highway construction.

State Highway Engineer D. C. Greer estimated that the decision, if upheld on rehearing, would relieve municipal and privately-owned utilities in Texas of some $28 million in relocation costs. Since the high court unanimously supported the reimbursement law, little prospect was seen that the ruling would be changed.

The opinion was given in two test cases which had been combined. They involved the cities of Dallas and Austin; Southwestern Bell Telephone Co., Dallas Power and Light Co., Lone Star Gas Co., and Southern Union Gas Co.

State Highway Department attorneys had protested that the reim-



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bursements authorized by the 1957 state legislature violated the Texas constitution, which prohibits paying public funds to private firms and generally restricts spending of highway-user tax receipts to road "construction."

The high court, however, found that the legislature acted within its discretion in providing for the state payments.

Written by Justice Ruel C. Walker, the opinion noted that courts in other states have divided on the validity of similar laws. It said such laws have been upheld in Minnesota, New York, Pennsylvania, New Hampshire and Maine, while they have been struck down by the courts of Tennessee and New Mexico.

The Texas court said the legislature had relieved the city-owned and private utilities "of a financial burden which they could be required to bear" but that it was not an unconstitutional donation.

"This question has not arisen frequently," Walker added, "because it is rather unusual for a legislative body to ameliorate an exercise of police power."

In upholding lower Texas courts, the opinion said that unless the state pays for relocating the utilities on highways, in most cases "the burden would ultimately fall upon local taxpayers and ratepayers, who must also provide part of the taxes used for highway construction. These individuals, who receive special benefit from the highways, would thus be required to contribute twice to the over-all cost of the undertaking."

Telephone Rate Decrease Accepted In New Mexico

NEW MEXICO'S State Corporation Commission has accepted an offer by Mountain States Telephone & Telegraph Co. to reduce charges by $302,200 a year in New Mexico, starting Feb. 1.

Despite the reduction, about two-thirds of the telephone customers in Albuquerque will continue to pay the same rates. About 30,220 customers in Albuquerque will benefit by being moved into lower priced zones. Not affected will be 58,403 Albu-

querque subscribers already in the cheapest rate area.

Reed Hatch, company vice president, explained Albuquerque is the only city in the state in the highest of seven different rate categories. Classes and charges are based on total telephone development in an exchange and Albuquerque has the greatest development, a criterion of value of service, in the state.

The reduction accepted by the commission was about two-thirds of a cut of $452,800 recommended by C. C. Boatright, head of the commission's rate department.

Vermont PSC Cuts Phone Rate Hike

VERMONT'S Public Service Commission has rejected 60 per cent of a $1.5 million rate boost sought in 1958 by the New England Telephone & Telegraph Co. As a result, a telephone rate dispute similar to one fought in the courts in 1957, but this time for higher stakes, appeared certain.

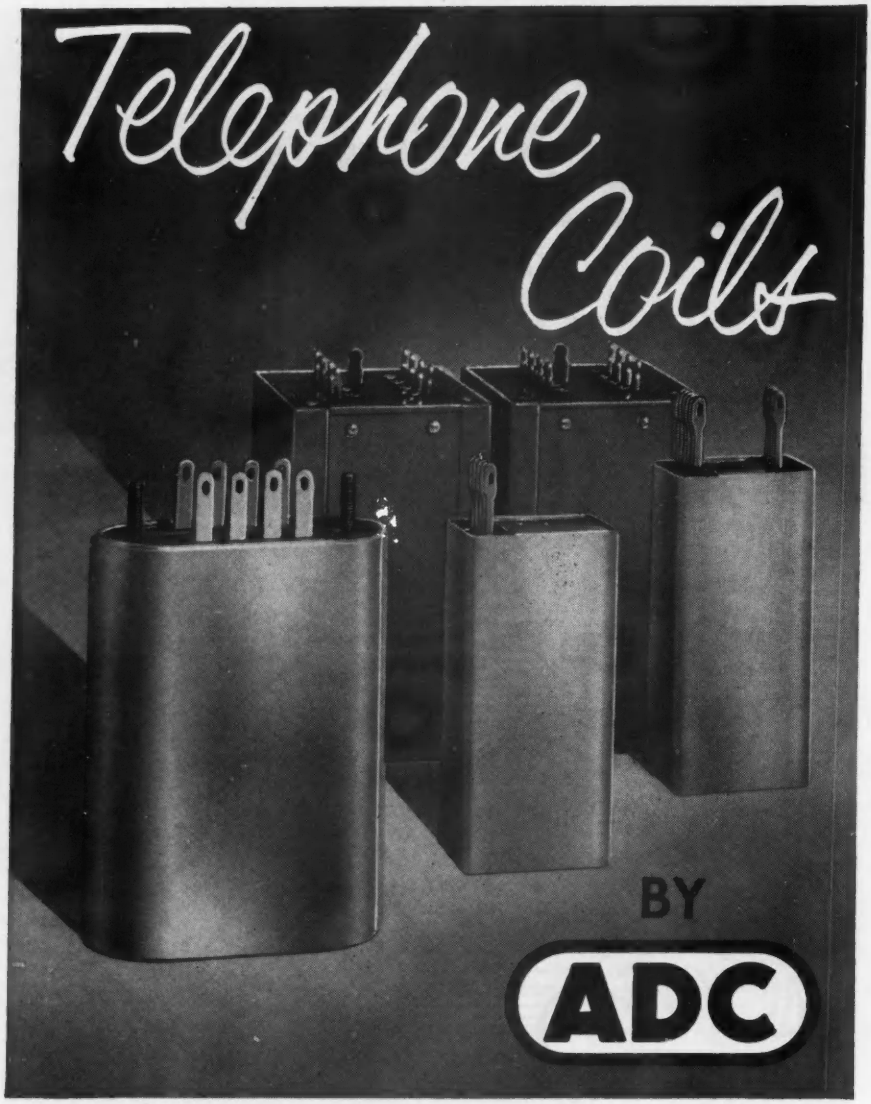
The commission granted approximately $513,200 of the hike sought by New England T. & T. No decision has yet been reached as to whether to appeal the order.

William J. French, the firm's Vermont manager, said it is "hard for us to see how a utility can effectively meet continual demands for service with earnings so severely restricted."

The commission said the firm is entitled to a rate return of 6 per cent on its intrastate rate base of $22,511,275. The company had asked for a return of 7.5 per cent when it sought the boost two years ago.

The $1.5 million rate increase was put into effect in August, 1958, after the company posted a $3 million bond. The commission ordered the company to refund $994,000, the portion of the requested increase which was disallowed.

The commission excluded $433,000 working capital from the firm's intrastate rate base requested by the company. Also disallowed was use of higher depreciation rates predicted on the installation of electronic central office and dial equipment and improved types of telephone instru-



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ments because the "evidence showed Vermont intrastate subscribers will not benefit from the use of this new equipment in Vermont for some years to come."

Of the $513,200 allowed increase, the company will retain as net earnings about $233,403 after paying a 1 per cent license fee to the American Telegraph & Telephone Co. and payment of state and federal taxes.

Telephone Rate Increase Approved in Washington

WASHINGTON'S State Public Service Commission has granted rate increases sought in November, 1959 by Pacific Telephone & Telegraph Co. As a result, subscribers in 25 Washington cities will pay ten to 45 cents a month more for residential service and from 75 cents to $2.25 a month per line for business service.

In Clarkston, rates decreased 40 cents for suburban, four-party and one-party residential service, 50 cents for two-party residential service, and $2 for one-party business service.

Commission Chairman Francis Pearson said the rate boosts were granted without a public hearing for several reasons. He said population in the affected communities has reached sufficient numbers to put them into new rate brackets. He noted that it was the first time in nearly six years that the cities had been reclassified. Subscribers, he added, would have paid the cost of public hearings.

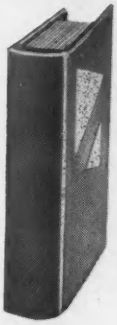
The higher rates will give the company a 6.4 per cent return on its investment, slightly more than the 6.1 per cent authorized by the commission at a previous rate hearing involving the company, according to Pearson, who said even so, the firm's return in Washington will be the lowest of any Pacific Coast state in which it operates.

Rock Creek Tel. Co. Plans DDD Service

WILLIAM C. McCLUSKY, president of the Rock Creek (Ohio) Citizens' Telephone Co., has announced extensive expansion and improvements to the Rock Creek office will go into service this fall.

Financing arrangements were com-

Your guide to the right choice of such electronic components as . . .



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Volume Three

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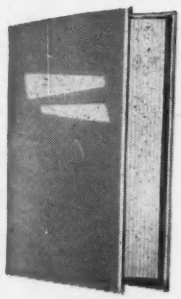

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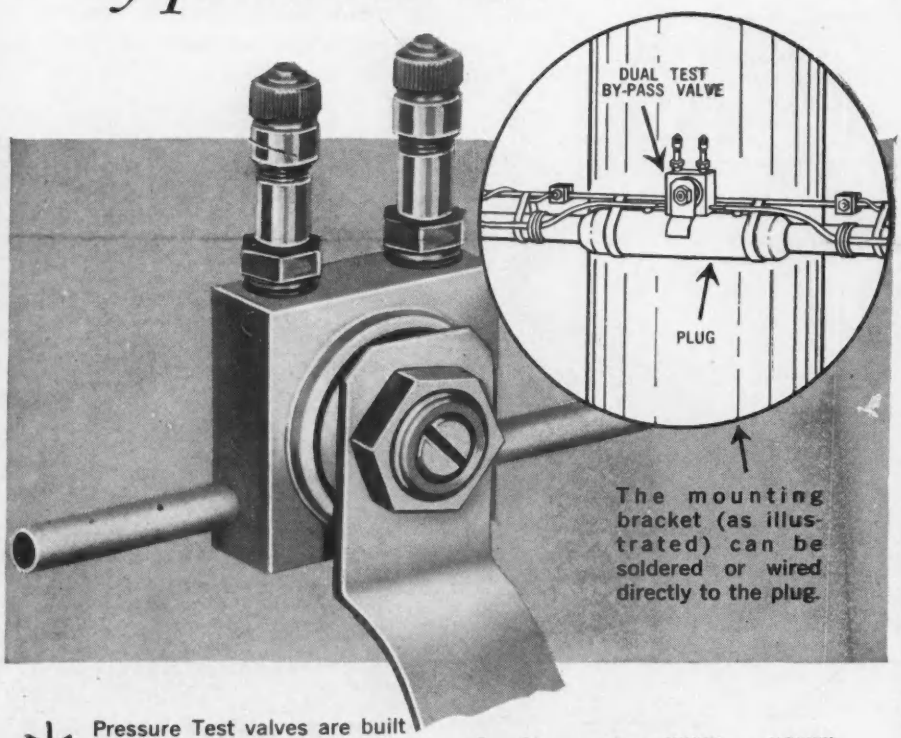

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This valve is ideal for all cable bypass installations. Pressures on both sides of the plug can be tested at the valve rather than at widely separated tees where the bypass tubing enters the cable. All parts are tin-plated brass in accordance with standard practice for outdoor installation.

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pleted through the manufacturer for a new 240-line NX-2 Modular Crossbar switchboard and Direct Distance Dialing equipment, with a new building to house the equipment. The cost of the building, along with substantial additions to the cable plant, is included in the financing.

McClusky stated that the Rock Creek Telephone Co., under his leadership, was one of the pioneers of unattended dial operating in Ohio. He said with the cutover of the new AuTollizer toll ticketing equipment, the company is reversing a trend by the resumption of handling its own toll. For the past 20 years, Rock Creek's toll has been handled by a connecting company.

Ernest E. Hilliard Joins Tele-Wire Supply Co., Inc.

TELE-WIRE Supply Co., Jamaica, N. Y., has named Ernest E. Hilliard sales representative for Kansas, Missouri, Iowa, and Nebraska. Ernie, as he is known to his many friends in the Mid-West, is a veteran member of the Independent telephone industry. His father was a plant superintendent for the Southwest Telephone Co. for many years until it was sold to Southwestern Bell. Ernie worked for the Southwest Telephone Co. while going to school. He served in the U. S. Navy, and in 1949 went into the contracting business for himself. He was recalled to active duty in 1951, and after returning, joined Plains Electrical Supply Co.

A. B. Chance Co. To Build Engineering Research Center

THE A. B. CHANCE CO. will break ground in April for a new Engineering Research Center, to concentrate its Engineering and Research operations for all plants at one location and to expand its engineering facilities. The 28,000-square foot engineering and laboratory building will be built on a two-acre tract near the headquarters plant in Centralia, Mo.

Facilities will include the most modern equipment in a complete high-voltage laboratory for impulse and 60-cycle testing, heat run and short circuit interruption test facili-

ties, environmental laboratory, mechanical laboratory, plastics laboratory, model shop, photographic department, engineering offices with conference rooms and library, plus outdoor testing facilities for mechanical and electrical testing.

Most of the building will be two stories high, but one section will rise to nearly 60 feet to provide clearance for a 2,400,000 volt impulse generator designed to deliver multi-million volt surges of electricity for testing Chance products used on high voltage lines.

William Brand & Co. and The Rex Corp. Consolidate

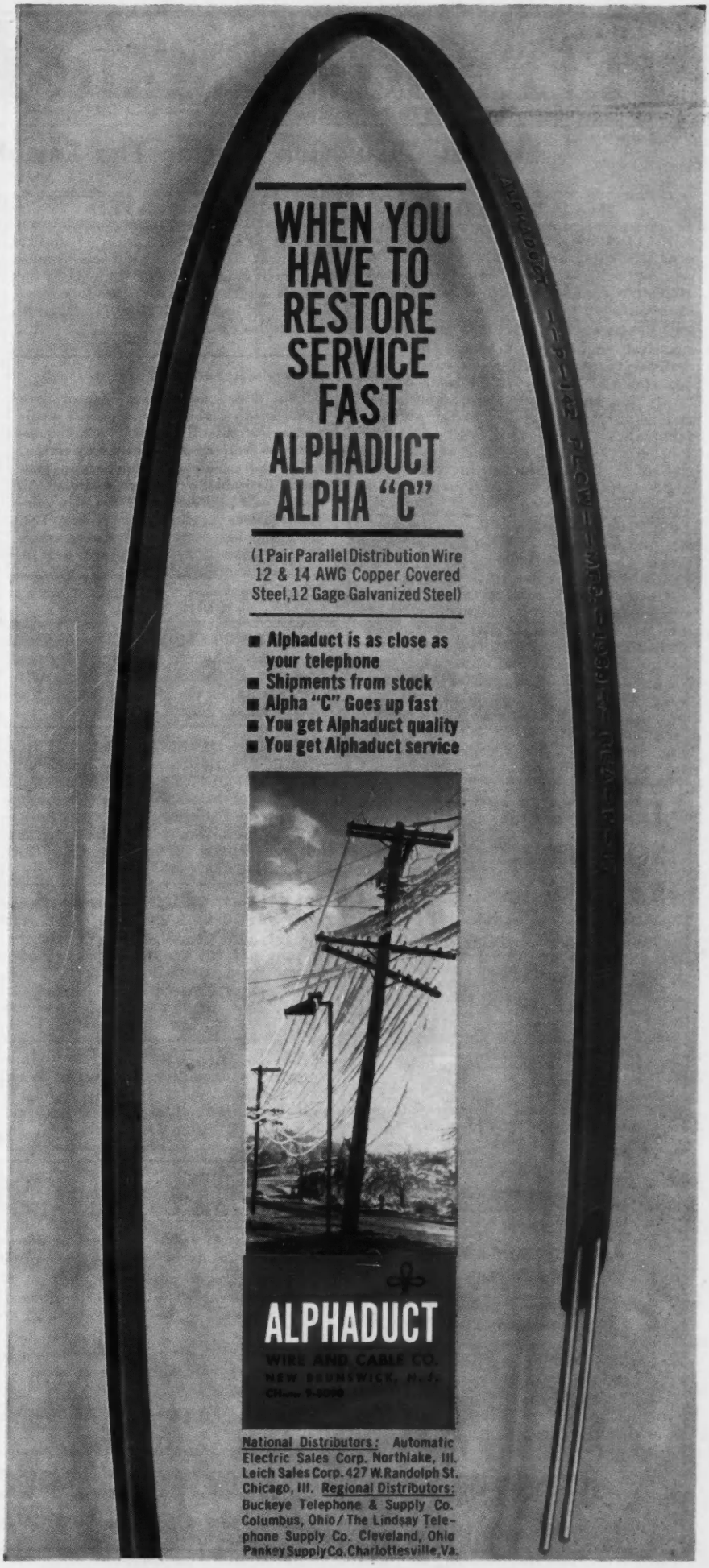
PHILIP B. STULL, newly elected president of American Enka Corp., has announced that Enka's two wire and cable properties acquired in 1958 and 1959 have been consolidated as a division of the parent company to be known as the William Brand-Rex Division. The new division begins its corporate life with sales in the $15-20 million range and a product line that was less than 10% duplicated in either company's list.

Except for enlarged and integrated facilities and staff, no changes are contemplated in the engineering and service structure of the division's telephone wire and cable operations. Harold E. Prouty will continue as telephone sales manager, with Robert Kiernan remaining his assistant.

Gilbert E. Bell, formerly president of The Rex Corp., is director of marketing for the division. Alfred W. Brand, son of the founder of William Brand & Co., Inc., and formerly its president, is in charge of production; and Robert J. Rodday, former executive vice president of Rex, is director of administration and development. They will headquarter at new executive offices in Concord, Mass., where the division's expanded sales engineering and technical service facilities also are housed.

Headquarters for the parent company is Enka, N. C., where the Enka Research Center, with its extensive facilities and staff of some 200 personnel, is located. Here, a special research group already is at work on

Please turn to page 70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TELEPHONE ENGINEER — Civil Service position title "Electronics Engineer (Wire Communications)." Salary range $8,810 — $9,530. Qualifications — Degree and experience or equivalent professional engineering experience in outside and inside plant and commercial departments plus administrative ability to conduct technical discussions and correspond with Naval activities. Location — Twelfth Naval District — includes Northern California, Utah, Nevada. Send Civil Service Application Form 57 to Personnel Division, District Public Works Office, San Bruno, California.

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DECALS
Made for trucks and equipment
Small or large quantities
Write for free catalog.
MATHEWS COMPANY
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POLES • CROSSARMS
RAIL or TRUCK DELIVERY
Pressure-treated to your specifications. 16 sales offices, 34 plants serving you. See Yellow Pages, write or call Pittsburgh EXpress 1-3300.
C-10
KOPPERS COMPANY, INC.
Wood Preserving Division
777 Koppers Bldg., Pittsburgh 19, Pa.

POLES, Creosote & Creosote Penta-Treated, Southern Yellow Pine — Piedmont Wood Preserving Co., P. O. Box 700, Augusta, Georgia.

POLES, Southern Yellow Pine — Texas Creosoting Co., Orange, Texas.

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UTILITY PLANT CONSTRUCTION
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BARGAIN STOCK CLEARANCE SALE

After inventory clearance of wanted pole line hardware and tool equipment at less than ½ regular price. Send for complete listing now. Quantities are limited and all items subject to prior sale. Below is only a partial listing of items available.

EQUIPMENT & TOOLS

Cable spinners, linemen's test sets, reels on barrow, bolt cutters, linemen's electricians, carpenters claw and ball pein hammers, draw shaves, genuine Klein connectors and wrenches, hacksaw frames, pruners and prunning saws, bush hooks, line hose, pole and tree climbers, tool pouches, climber straps and pads, tool belts and many more items of tool equipment too numerous to mention.

POLE LINE HARDWARE & CONSTRUCTION MATERIAL

All sizes of carriage and machine bolts, thimbleye bolts, double armming bolts, steel insulator pins flat square and curved washers, ground wire and ground wire moulding plates, ground rods, pipe and cable straps, and many more.

Write or wire at our expense for complete list now before items are sold. Every item is guaranteed to be a bargain.

LINE EQUIPMENT SALES
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Get It Done With A
TELEPHONE ENGINEER & MANAGEMENT
Classified Ad

When a directory advertising salesman calls on YOUR customer
Be confident of the integrity of the man.

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THEY BUILD GOOD WILL AND PRODUCE MORE REVENUE

For Further Information Call or Write

SUTTLE DIRECTORY COMPANY
401 N. 15th St. **(Cooperative Plan)** Telephone 782
LAWRENCEVILLE, ILLINOIS
Modern Styling Highest Quality

TELEPHONE MARKET PLACE

(Continued from page 67)

PROFESSIONAL SERVICES

ALLEN K. HAMILTON ASSOCIATES, INC.
CONSULTANTS - SYSTEMS ENGINEERS
GENERAL ENGINEERS
WOODSTOCK, ILLINOIS — TELEPHONE FEderal 8-2400

McGRATH ENGINEERING, INC.
Consulting Engineers
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Telephone CEntral 2-2358

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"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives
Consultation and specification writing
A. W. WILLIAMS INSPECTION CO.,INC.
MOBILE, ALABAMA
New York St. Louis Portland
Inspectors stationed throughout the U.S.A.

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Telephone Electronics Installation Corp.
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MAY WE BE OF SERVICE TO YOU?

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Cable Splicers
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Ashland, Ohio 3-7543 — St. Johns, Mich. 966
Bloomington, Ill. 5-7717 — St. James, Minn. 492
Lebanon, Ky. 660 — Durham, N. C. 7-1316
Wausau, Wis. 2-2356
PERFORMANCE Has Built Our Business

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Consulting Engineers
121 S. Pinckney, Madison 1, Wis.
Telephone CEDAR 3-4310

DIAL SWITCHBOARDS

Automatic Electric CAX-11 Dial Central Office 400 Lines, 400 Terminals, 28 Line Finders, 28 Local First Selectors, 7 Inc. Toll Int. Selectors 23 Local Ten Party Connectors, 9 Cond. Ten-Party Connectors, 8 Two-way Trunks. Power Plant MDF with Type 3800 Protection (808 Pairs) Originally installed 1953. Available from stock.

North Electric CX-150 and CX-200 Dial Central Offices. Complete with Power Bays, Trunk Bays and MDF. (As removed from Service.)

Federal #25-C Dial PABX Switchboard, consisting of 25 Lines, 3 Links and 5 Trunks. Complete with Key Turret less Battery Charger. (As removed from service.)

BUCKEYE TELEPHONE & SUPPLY CO.
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All Makes
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PUBLIC UTILITY CONSTRUCTION
A complete construction service for the telephone industry
Construction Crews — Designing
Station Installers — Appraisals & Reports
Cable Splicers — C. O. Installation
Underground Duct Systems
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PROTECTIVE EQUIP.

PROTECTIVE EQUIPMENT — Reliable Electric Company, 11333 Addison St., Franklin Park, Ill.

TELEPHONE EQUIPMENT

SPRING TENSION GAUGE
Extremely accurate for determining settings or checking tension of relay and other springs.
- **Well made — accurately calibrated.**
- **Definite and dependable.**

Construction: Nickel silver frame with scale calibrated—front and back. Indicating spring. Folding handle. Adjustable tension attachment.

STG-2-D — (#70-D type) 50-0-50 grams, 5 gram steps.
STG-2-H — (#70-H type) 0-30 grams, 2 gram steps.
STG-2-J — (#70-J type) 0-150 grams, 5 gram steps.
STG-2-F — (#70-F type) 10-0-10 grams, 1 gram steps.

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511-21 N. Dwyer St., Arlington Heights, Ill.

2000 Lbs. Capacity trailer. For ALL materials including pay out take up cable, line wire and drop wire. Priced RIGHT Write for illustrated literature NOW TODAY

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TELEPHONE ENGINEERS: Immediate openings as field engineering supervisor for telephone outside plant and inside plant engineers. 10 years of broad industry background. With some direct field experience desirable.

To arrange for a Confidential interview, please send resume to:

MR. H. J. RECKAS, *Personnel Manager*

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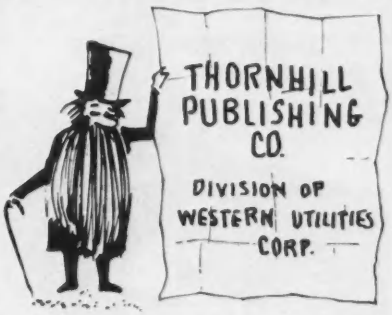
A Division of Cook Electric

6038 Twenty-Eighth Avenue, S.E., WASHINGTON 23, D. C.



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A RIVER TO CROSS?

Submarine Cable — 25 pr #19 ga., double paper, lead covered, double wire armor, jute protected. 800 ft per reel: price per reel $800. (18 reel only)

Direct Burial, 26 pr #19 ga. PILC, double steel tape armor, jute. (1400 ft only) $400. M ft.

Plastic Burial Cable 6 pr #16 ga. (stranded) with 1 #12 ga. quad. shielded PVC ins. & jacket wire armor. (sample on request)

Lead. 51 pr.#19 ga. plus 4 Video pr. #16 ga. copper shielded) poly eth. ins. (1300 ft only) $750. per M ft.

Special Purpose cable available for immediate delivery at special low prices. Interior & exterior types. Lead, plastic and braid Switchboard cable available at special prices.

Twisted Drop Wire #104, Copperweld 40% Neoprene covered, $50. per M ft.

Twisted Pair Drop #20, Copperweld 40% Neoprene, $15.00 M ft.

QUADDED CABLE lead

7 quad #19 ga. PILC (100,000 ft) 3-4 M ft. per reel, $200. per M ft.

37 quad #19 ga. PILC 1050 ft, $650. per M ft.
7 quad #19 ga. Plastic Superior, 5300 ft, $250. per M ft.

11 pr #19 ga. PILC 4500 ft reels, 24,000 ft total, $200. per M ft.

26 pr #19 ga. Neoprene 1400 ft (not coded), $250. per M ft.

101 pr #22 ga. Plastic 1300 ft, $750. per M ft.
303 pr #22 ga. Ankoseal 775 P, 2000 ft, $2. per foot.

Flexible Neoprene cables for elevator and other mobile use from 5 pair to 40 pair (also unpaired multiconductor).

Drop Wire, Neoprene (reinforced) #18 ga. Copperweld. Slightly used A-1 condition, in coils of approx. 500 ft lengths, $10. per M ft.

Satisfaction Guaranteed — we ship on approval — freight allowed on carloads

The Telectric Co.

1218 VENICE BOULEVARD **Telephone: RIchmond 8-2249** **LOS ANGELES 6, CALIF.**

(DDD 213)

JOIN THE NATION'S TOP RELAY ENGINEERING TEAM

In the field of relay engineering, the acknowledged growth leader is C. P. Clare & Co. Our many FIRSTS in the industry start with our top-notch engineering team.

Continuous expansion requires a search for qualified men to join this select group. Here is your opportunity to be in on the ground floor of a company whose record proves that your rapid advancement and increased remuneration are assured.

Look at the facts

- **STARTING SALARY** — well above industry average.
- **PROFIT SHARING** — 15% of annual wage. None higher in the nation. Company profits are your profits.
- **ADVANCEMENT** — You'll be more than satisfied with your progress. We're known for our lack of employee turnover problems.
- **SMALL COMPANY ATMOSPHERE** — No chance of being lost in the shuffle.
- **FRINGE BENEFITS** — You receive full fringe benefits including major medical plan.
- **LOCATION** —Northwestern Chicago — minutes from the beautiful northern suburbs.
- **RELOCATING** — All expenses paid. Company will assist in securing housing if requested.

This is only an outline of the C. P. Clare story. If you would like to find out more, send us a description of your background. All inquiries will be without obligation and held in strictest confidence.

Contact: R. N. ARTHUR, Personnel Manager

C. P. CLARE & CO.

3101 PRATT BLVD. • CHICAGO 45, ILLINOIS

AMbassador 2-7700

(Continued from page 65)

important development projects for the new division.

The consolidation gives the Brand-Rex Division four manufacturing locations: West Acton, Mass., North Windham, Conn., Willimantic, Conn. and Santa Monica, Calif. Expansion of the West Acton, Mass. and North Windham, Conn. plants is currently under way, and expansion plans are on the drawing boards for existing West Coast facilities.

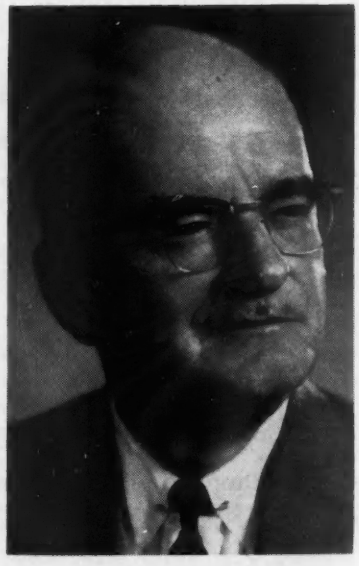
John M. Ticknor Joins Cook Electric Company

JOHN M. TICKNOR has joined Cook Electric Co. as manager, area operations, with headquarters at 110 W. Liberty St., Rome, New York.

Prior to joining Cook, Ticknor was with Hoffman Electronics. He served as an officer of the Utica Chapter of the Armed Forces Communications and Electronics Association, and is a member of the IRE.

Hoit Named Senior V. P. Stromberg-Carlson Div.

GORDON G. HOIT has been appointed senior vice president of the Stromberg-Carlson Division of General Dynamics Corp., Rochester, N.Y.,



GORDON G. HOIT

effective immediately, according to Allan R. Shilts, vice president and general manager. In his new capacity Hoit will have responsibility for the coordination of public, community and industrial relations.

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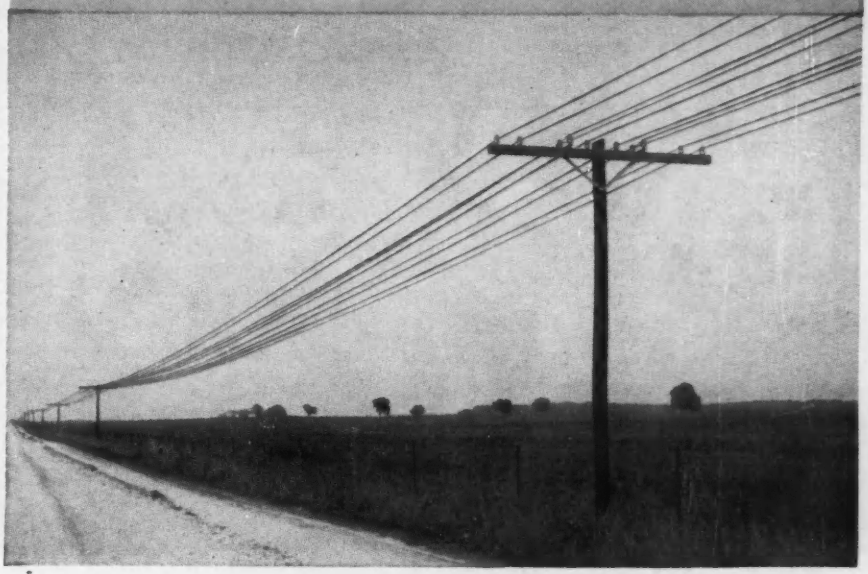
Crapo HTL-135

High Tensile Line Wire

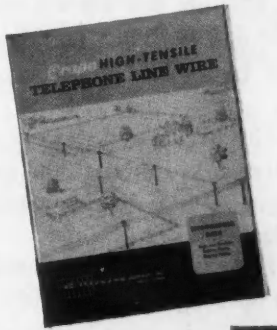
MADE TO WITHSTAND HEAVY STORM LOADS

Time and time again, *Crapo* HTL-135 has demonstrated its ability to stand up under heavy ice and wind loads when other conductors failed. This can be attributed to the fact that *Crapo* HTL-135 combines high strength with high fatigue endurance plus superior elastic qualities which enable it to spring back into place when loads are removed. The result: service interruptions are minimized, re-sagging is seldom necessary, where this rugged telephone wire is used.

The excellent telephonic transmission characteristics of *Crapo* HTL-135 make practical subscriber loops of 14 to 15 miles with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. For dependable, long-span, low cost rural lines, specify *Crapo* HTL-135.



HERE'S PROOF OF DEPENDABILITY

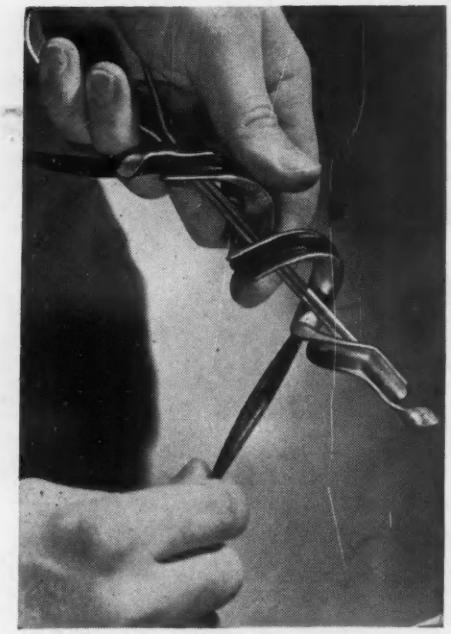


The **Crapo** HTL-135 in this typical rural line of 300-foot spans was subjected to two heavy ice storms within 14 months. This photo shows the line, without resagging, three months after the second storm.

Write for Manual TM-59
containing complete engineering data!

Crapo HTL-135
INDIANA STEEL & WIRE CO., INC. MUNCIE, INDIANA U.S.A.

INDIANA STEEL & WIRE CO., INC.
Muncie, Indiana



Wire-Saving Snubbing Action . . . with this

KEARNEY

SNUB-R-GRIP DROP WIRE GRIP

On poles or buildings this free-swinging drop wire tie provides a "snubbing" action stronger than the rated strength of the wire. This is possible because the unique spiral grip distributes the pull over a long length of wire. KEARNEY Snub-R-Grips are quickly installed and easily salvaged. Just wrap the wire (twisted pair, parallel or synthetic-jacketed) into the grooved spiral. A portion of the groove's inner surface is specially coated to give maximum non-slip grip . . . without damage to insulation.

For Better Construction . . . Safer Maintenance

Specify 268

KEARNEY PRODUCTS

4224-42 Clayton Ave. • St. Louis 10, Mo.
Canadian Plant: Guelph, Ontario

THE BACK OF THE BOOK

By JOHN G. REYNOLDS

Big Letter In The Alphabet

For Sigmund Schy of Chicago, all of the alphabet that matters runs from A to AAAAAAAAAA.

In a recent Illinois Commerce Commission case, Schy asks that the Illinois Bell Telephone Co. be required to list his phone-answering service in the Chicago directory as: 1A, 2A, 3A, 4A, 5A, 6A, 7A, 8A, 9A, 10A. Each set of A's would be followed by the telephone number DE 2-7900.

These listings would lead all others in the alphabetical phone book and dominate the telephone-answering service section of the Red Book. Schy also would be entitled to buy a 2-inch ad under each classified listing to take up half a page in the Red Book.

Illinois Bell resisted on the ground that its tariff filed with the commission forbids any special arrangement of names not necessary for identification.

William E. Helander, ICC examiner who presided at three hearings, marked the taking of evidence closed over the protests of Schy that he wanted a change of venue. Schy contended the examiner was prejudiced because he objected to granting continuances asked on a few hours' notice. Helander said Schy was spending all the hearing time arguing and was not offering evidence. . . .

Note For Letter Writers

► *Communication may be getting easier but it isn't getting cheaper. A recent survey turned up the discouraging news that business letters are costing more and more each year. In* 1960 *average cost will be* $1.83, *a rise of* 63 *cents since* 1953. . . .

Dictating 30 *letters a day, a businessman's correspondence would cost* $48.90 *daily. Multiply this by an average of* 22 *working days a month and the monthly sum jumps to* $1,075 *and annually* $12,909. *The culprits, according to the Dartnell Corp., Chicago research publisher, are increased cost of labor, material and postage. . . .*

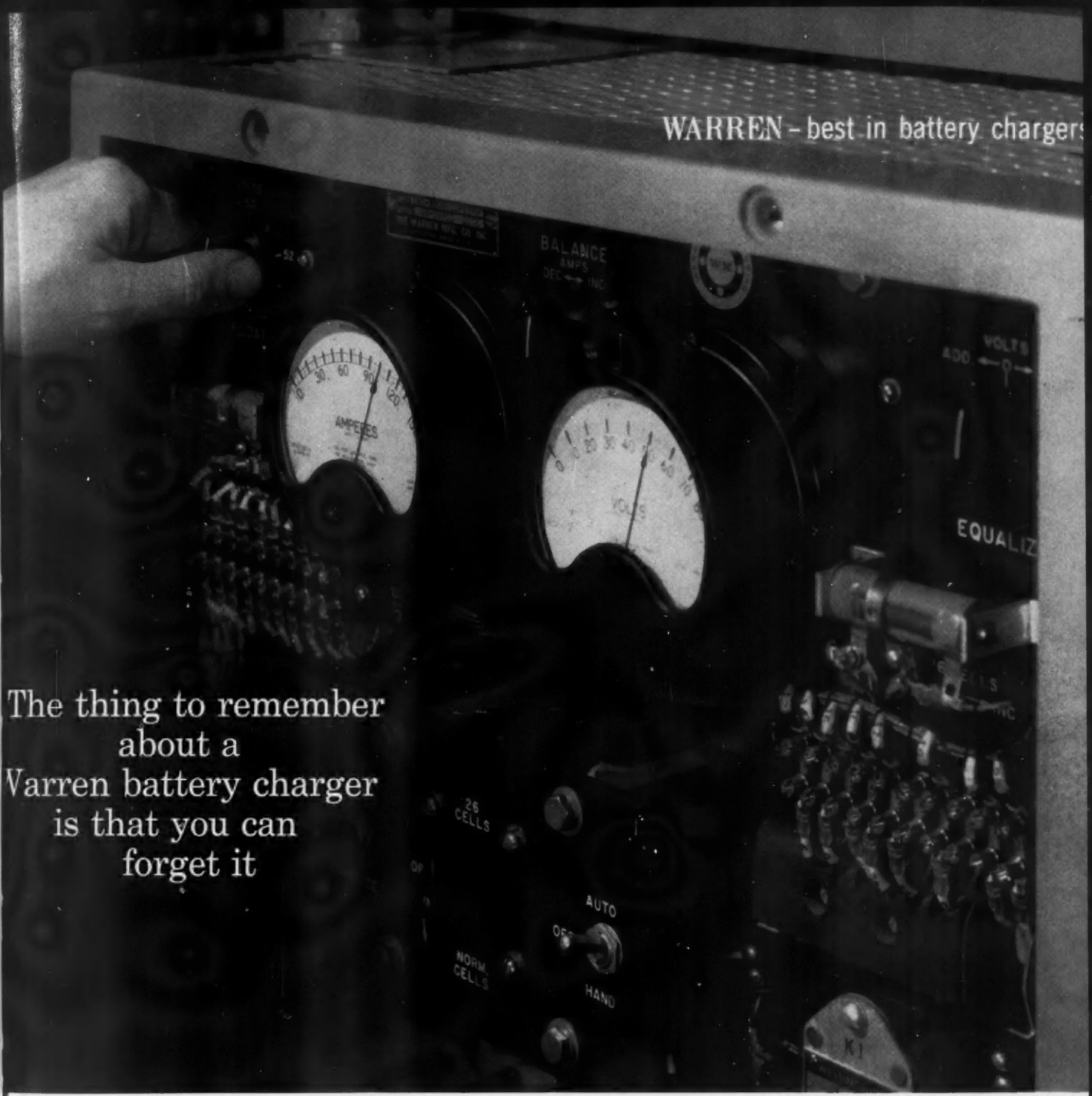
"Bookie Chaser"

An Illinois Bell Tel. Co. employe with 50 years service who prides himself on being one of "those most disliked by the hoodlums" has retired. He is William Garrity, the company's superintendent of security.

Garrity began work for the telephone company in 1910 as an office boy. He worked through the ranks as a testman, wire chief, night plant superintendent and chief special agent before becoming superintendent of security.

"We don't want bookie business and it was my job to see that bookies didn't operate," Garrity said.

Some 4,00 bookie telephones were removed while Garrity was security superintendent, the company said.



The thing to remember about a Warren battery charger is that you can forget it

What we're talking about is *maintenance*. With Warren TFR's in your telephone exchange, there's less of it. A lot less.

Take the question of voltage adjustment, for instance.

With a Warren TFR of proper rating (and *only* with a Warren TFR) you can adjust voltage with consummate precision simply by turning a knob, conveniently located at eye level.

And then — you can forget it.

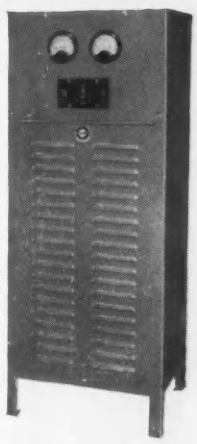
When we say "forget it" we mean just that. The reading won't change, no matter what.

Repeat — the reading won't change until you want to readjust for another voltage setting. Period.

The reason: Warren's supremely efficient, transistorized circuitry, featuring: a hermetically sealed Zener reference diode for precision voltage reference; germanium power transistors for simplicity and reliability; and *silicon* power rectifiers which positively refuse to age. You never have to adjust for aging — not next week, or next month, or next year, for all of that.

Less maintenance, superior performance — and in a lot less space.

Let us send you full information.



Compact, transistorized, field-proven Warren TFR's are available in a full range of current ratings in 24, 48, and 130 volt models. Illustrated: 48 TFR 100 with knobs safely located behind cover.

MANUFACTURING WM

THE WARREN MFG. COMPANY, INC.

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FIRST IN TRANSISTOR PRODUCTS FOR THE TELEPHONE INDUSTRY — SOLD THROUGH LEADING TELEPHONE EQUIPMENT MANUFACTURERS

Shortest way to Short-proof splices...

Nicopress Splice Separators...

Ideal combination for full-strength, short-proof splices in parallel and twisted-pair wires... Nicopress Sleeves and Nicopress Splice Separators.

Nicopress Splice Separators save time, save tape, eliminate need for staggering splices, provide neater splices, eliminate shorts. Linemen readily make full-strength equal-tension splices in both parallel and twisted-pair conductors with Nicopress Sleeves and Tools, then merely snap the high-dielectric Nicopress Separator between the two splices. Tape is easy to apply over the insulated splices.

Nicopress Splice Separators are available in two sizes... 3456-B for both parallel and twisted-pair drop wire, and 3457-CD for rural distribution wire.

The National Telephone Supply Company

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Canadian Mfr.—N. SLATER CO., LTD., HAMILTON, ONT., CANADA

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